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THE WORKS

OF

SIR BENJAMIN COLLINS BRODIE

BART. D.C.L.

SERJEANT-SURGEON TO THE QUEEN,

PRESIDENT OF THE ROYAL SOCIETY, ETC.

WITH AN AUTOBIOGRAPHY.

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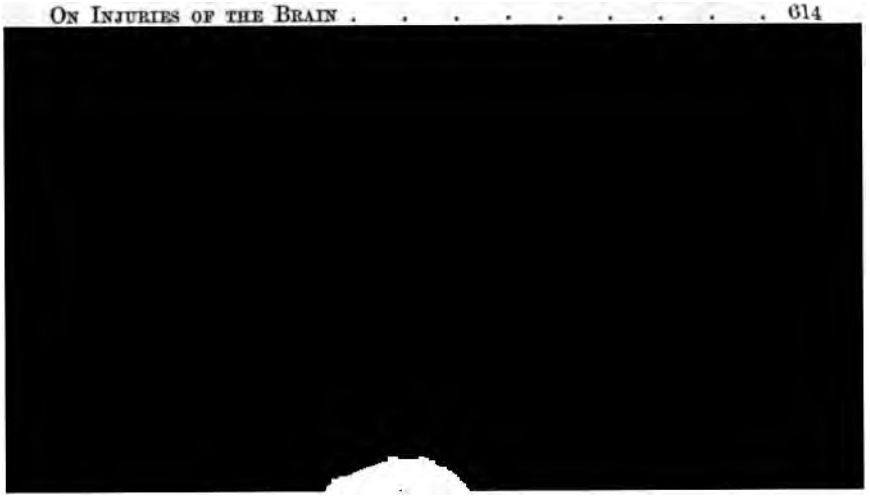

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THE WORKS

OF THE LATE

SIR BENJAMIN BRODIE,

BART.

PATHOLOGICAL AND SURGICAL OBSERVATIONS.

ON ABSCESS IN THE BRAIN.

FROM THE TRANSACTIONS OF THE SOCIETY FOR THE IMPROVEMENT OF MEDICAL AND CHIRURGICAL KNOWLEDGE. VOLUME III., 1812.

THE following case, which lately came under my observation, appears to illustrate some circumstances relative to the Pathology of the Brain, and is therefore laid before this Society.

Master S. from the time of his being a child was subject to sick-headaches. He was observed to have a slow apprehension; but his judgment was correct, and what he learnt was thoroughly retained. In other respects, nothing unusual was noticed in regard either to his understanding or general health.

When about two years of age, a discharge of matter was observed from his left ear, and he became deaf on that side. The discharge from the ear was nearly constant. In March 1809, when he was fourteen years of age, it was not at all lessened; and a small fungous excrescence was observed within the external meatus. At this time I was applied to, and recommended the application of citrine ointment, mixed with an equal quantity of

lard, to the fungus, on the supposition that the disease was confined to the ear. The discharge did not abate, and in the April following Mr. Home was consulted, and recommended the citrine ointment to be applied daily to the fungus, by means of a camel's-hair pencil. Under this treatment, in the course of two or three weeks, the discharge wholly ceased; but he was now seized with a violent pain in the diseased ear, and left side of the head. The application of the ointment was omitted; in a few days the pain abated, and the discharge from the ear returned.

After this the citrine ointment was again applied. About the 20th of May, the discharge from the ear entirely ceased, and henceforth only returned at intervals, and in a slight degree. A week afterwards he was seized with a pain in the head, so violent, that he screamed and said he was going mad. The pain in the head recurred daily in a greater or less degree, but he was still able to associate with his school-fellows as usual, though not to attend to his studies. On Saturday the 17th of June, he suddenly complained of excruciating pain in the head; he immediately after became insensible, and remained so for some time. On the following day he was drowsy, the pupils of his eyes were dilated, and his pulse beat only from thirty to forty times in a minute. On Monday the 19th of June, Dr. Maton saw him, and directed a blister to be applied to his head, and that he should take some purgative medicines, as his bowels were extremely bound. In the evening he was somewhat better. On the following day, the 20th of June, I saw him, and found his pulse beating sixty times in a minute. He said he was sleepy, but he was perfectly sensible,

vessels of the pia mater were also turgid, and the surface of the tunica arachnoides covering that membrane was perfectly dry, as if it had been wiped with a cloth.

The ventricles of the brain contained about two ounces of watery fluid.

In the left hemisphere of the cerebrum, there was a cyst, about three inches in diameter, of a pulpy consistence, thick, and vascular, and containing a thick, dark coloured pus.

The lower part of the cyst rested on the petrous portion of the temporal bone. There was a very small opening through the cyst, dura mater, and bone, forming a communication between the cavity of the cyst, and the meatus auditorius externus.

The substance of the cerebrum, immediately surrounding the cyst, was of a yellow colour, and much softer than is natural.

That an abscess should form in the brain, and discharge matter by the ear, is certainly not a frequent occurrence; nevertheless some other instances of this kind are on record.* But in the case I have related, there are some circumstances which render it particularly worthy of attention.

The abscess in the brain must have begun to form at a very early period after birth, since it had occasioned ulceration of the bone, and had discharged matter by the ear, when the patient was only two years of age.

As long as the discharge continued from the ear, no urgent symptoms occurred; when it ceased, violent pain in the head took place, which abated as soon as the discharge returned. On the discharge again ceasing, the pains in the head recurred, and at last symptoms of pressure on the brain came on, and the patient died.

The partial evacuations from the ear prevented the rapid accumulation of matter; so that the substance of the brain was removed in proportion as the abscess increased in size. Notwithstanding so large a portion of the cerebrum was destroyed, that circumstance had not been productive of any alarming symptoms.

* See Morgagni, Epist. Anatom. xiv. and Duncan's Med. Commentaries.

Those which afterwards occurred evidently arose from pressure on the brain, in consequence of the cessation of the discharge from the ear.

From this case we may conclude, that pressure on the brain is, on the whole, a more serious injury than the loss of substance in that organ. This is contrary to what analogy would lead us to expect. The truth of the conclusion does not, however, rest on this individual case. We find many instances of injuries of the head, in consequence of external violence, which show, that the immediate symptoms produced by a fracture with depression, or an extravasation of blood within the cranium, are, on the whole, more dangerous than those produced by wounds and loss of substance of the brain, unattended by pressure.

Where the cranium is completely ossified, and incapable of dilatation, the effusion of even a small quantity of water into the ventricles is sufficient, by its pressure, to occasion disarrangement of the functions of the brain, and death: but in the infant state, where, from the bones being not yet united, and from the cranium being therefore capable of dilatation, a large quantity of water may be accumulated without occasioning much pressure, we find that a hydrocephalous patient continues to live when nearly the whole brain is destroyed by disease. In a case of hydrocephalus which came under Mr. Home's observation, on examination after death, the medulla oblongata, and a small medullary pulp behind the orbits, were the only parts of the brain which were found remaining.

A distinction is usually made between the effects of sudden and

the symptoms of pressure being produced. On examining such cases after death, we find, from parts of the brain retaining their natural positions, that it has not been much compressed, although much of its substance has been destroyed.

All these facts tend to establish the proposition, that pressure on the brain, on the whole, affords more impediment to its functions, and is more likely to lead to a fatal termination, than actual loss of substance.

The dryness of the tunica arachnoides in the case which I have described, merits notice. Dr. Baillie has observed a similar state of the pericardium; * and I once before observed such a state of the tunica arachnoides in a body which I examined in Dr. Baillie's presence. It is remarkable that there should have been so total a want of secretion in the membrane investing the brain, when there was a preternatural quantity of water in the ventricles, the secreting membrane of which is in reality a continuation of it.

* Morbid Anatomy, chap. i.

ON THE EFFECTS PRODUCED BY THE BILE IN THE PROCESS OF DIGESTION,

IN A LETTER TO THE EDITOR OF THE QUARTERLY JOURNAL OF SCIENCE, VOLUME XIV., 1823.

DEAR SIR.—I send you a brief history of some experiments relating to the uses of the bile, which I made a few years ago, and which I mentioned in my lectures delivered in the theatre of the Royal College of Surgeons during the last spring. They form a part of a series of experiments relating to the function of digestion. I hope on some future occasion to be able to lay the rest of the investigation before the public, but it is not in a state of sufficient forwardness for me to venture to do so at present.

Various opinions have been entertained by physiologists respecting the office of the liver. Some have supposed that the secretion of bile is merely excrementitious; others, that the bile is intended to stimulate the intestine, and to produce a ready evacuation of the fæces; and another opinion has been, that the bile is poured out into the duodenum, that it may be blended with the chyme. and by producing chemical changes in it, convert it into chyle.

and then noted the effects produced on the digestion of the food which the animal had swallowed either immediately before or immediately after the operation. The experiment was repeated several times, and the results were uniform. Before I describe these results, it may be proper to make one further observation. The application of a ligature round the choledoch duct is easily accomplished, and with very little suffering to the animal, so that any derangement in the functions of the viscera which follows cannot reasonably be attributed to the mere operation. The division of the stomachic ropes, or terminations of the eighth pair of nerves on the cardia of the stomach, and the ligature of the whole extremity of the pancreas, are operations of much greater difficulty; yet it has been ascertained that neither of these at all interferes with the conversion of the food into chyme, or that of the chyme into chyle.

When an animal swallows solid food, the first change which it undergoes is that of solution in the stomach. In this state of solution it is denominated chyme. The appearance of the chyme varies according to the nature of the food. For example, in the stomach of a cat the lean or muscular part of animal food is converted into a brown fluid, of the consistence of thin cream; while milk is first separated into its two constituent parts of coagulum and whey, the former of which is afterwards redissolved, and the whole converted into a fluid substance, with very minute portions of coagulum floating in it. Under ordinary circumstances, the chyme, as soon as it has entered the duodenum, assumes the character of chyle. The latter is seen mixed with excrementitious matter in the intestine, and in its pure state ascending the lacteal vessels. Nothing like chyle is ever found in the stomach; and Dr. Prout, whose attention has been much directed to the chemical examination of these fluids, has ascertained that albumen, which is the principal component part of chyle, is never to be discovered higher than the pylorus. Now, in my experiments, that were made chiefly on young cats, where a ligature had been applied so as to obstruct the choledoch duct, the first of these processes, namely,

the production of chyme in the stomach, took place as usual; but the second, namely, the conversion of the chyme into chyle, was invariably and completely interrupted. Not the smallest trace of chyle was perceptible either in the intestines or in the lacteals. The former contained a semi-fluid substance, resembling the chyme found in the stomach, with this difference, however, that it became of a thicker consistence in proportion as it was at a greater distance from the stomach, and that as it approached the termination of the ilium in the cæcum, the fluid part of it had altogether disappeared, and there remained only a solid substance, differing in appearance from ordinary fæces. The lacteals contained a transparent fluid, which I suppose to have consisted partly of lymph, partly of the more fluid part of the chyme, which had become absorbed.

I conceive that these experiments are sufficient to prove that the office of the bile is to change the nutritious part of the chyme into chyle, and to separate from it the excrementitious matter. An observation will here occur to the physiologist. If the bile be of so much importance in the animal economy, how is it that persons occasionally live for a considerable time, in whom the flow of bile into the duodenum is interrupted? On this point it may be remarked, 1st, that it seldom happens that the obstruction of the choledoch duct from disease is so complete, as to prevent the passage of the bile altogether, and the circumstance of the evacuations being of a white colour may prove the deficiency, but does not prove the total absence of bile. 2nd, that in the very few authenticated cases which have occurred of total obliteration of

probably this would have been sufficient to maintain life during a limited period of time.

In the prosecution of this inquiry, a circumstance occurred which seems not unworthy of notice, although not immediately connected with the subject of digestion. The ligature applied round the choledoch duct was always a single silk thread, the ends of which were cut off close to the knot. If the animal was allowed to live, he became jaundiced. The tunicæ conjunctivæ of the eye were tinged wth bile, and bile was seen in the urine. But at the end of seven or eight days, I found, in several instances, that an effort was made by nature to repair the injury done by the operation, and to restore the passage of the bile into the intestine. In these instances, on destroying the animal at the end of the above-mentioned period, and exposing the cavity of the abdomen, and then making an opening into the duodenum, I ascertained that on compressing the gall bladder, the bile flowed out of the orifice of the choledoch duct in a full stream, in spite of the ligature. On further dissection, I found that a mass of albumen (coagulated lymph) had been effused, adhering to the choledoch duct above and below the ligature, and to the neighbouring parts, and exposing a cavity in which the ligature was contained. The pressure of the bladder had caused the duct to ulcerate, without adhesion having taken place of the surfaces which had been brought into contact; and the ligature having been separated from it by ulceration, lay loose in the cavity formed by the albumen which had been effused around it. Into this cavity the bile might be made to flow from the upper orifice, and out of it into the lower orifice of the choledoch duct, and thus the continuity of the canal intended for the passage of the bile was restored. It is still more remarkable that the same thing happened even when the two ligatures had been applied on the choledoch duct at some distance from each other.

The physiologist will not fail to observe the difference between the effects produced by a ligature applied to an excretory tube,

and a ligature applied to an artery or a vein. A circumstance nearly correspondlng to that which I have now mentioned, has been noticed by Mr. Travers, respecting the consequences which follow the application of a ligature round the intestine.*

* See an Inquiry respecting the Process of Nature in repairing Injuries of the Intestines, by B. TRAVERS. London, 1812.

ON THE TREATMENT OF
VARICOSE VEINS OF THE LEGS.

FROM VOLUME VII. OF THE MEDICO-CHIRURGICAL TRANSACTIONS,

1816.

It seems to be established by the experience of modern surgery, that a mechanical injury inflicted on the trunk of one of the larger veins is liable to be followed by inflammation of its internal membrane, and a fever of a very serious nature; and the occasional occurrence of these symptoms after the ligature, or even the simple division of the vena saphæna, has occasioned surgeons to be cautious in performing these operations for the relief of a varicose state of its branches in the leg.

But are the same ill effects likely to take place if a similar operation be performed on the branches themselves? Reflecting on the following circumstances, I was induced to answer this question in the negative. Varicose veins of the legs are so frequent in persons of the inferior order (at least in this metropolis), that it cannot be otherwise than that a considerable proportion of those who apply at the hospitals on account of wounds of the legs must labour under this disease; yet I do not recollect an instance of venous inflammation following such an accident, neither has such an instance occurred among a great number of cases which have come under my observation, in which the varicose veins of the rectum, forming piles, have been removed by excision or by ligature.

It was recommended by Celsus to destroy varices of the leg, by

the cautery, or by extirpating them with the knife; and the same operations have been performed (though but seldom) by some more modern surgeons. The consideration of the circumstances which have been just stated, led me to venture on the adoption of a practice somewhat corresponding, though not exactly similar, to that of Celsus. Finding that it was attended with benefit to my patients, and that no ill consequences ensued, I did not hesitate to repeat the experiment in a considerable number of cases. It is the result of my observations on this subject, which I have now the honour of laying before this Society; not in the belief that I am communicating surgical facts of the first importance, but hoping, nevertheless, that what I have to mention will be found not altogether undeserving the notice of the profession.

Where the whole of the veins of the leg are in a state of morbid dilatation, and the distress produced by the disease is not referred to any particular part; there seems to be no reasonable expectation of benefit, except from the uniform pressure of a well-applied bandage. But not unfrequently, we find an ulcer which is irritable and difficult to heal on account of its connection with some varicose vessels; or, without being accompanied by an ulcer, there is a varix in one part of the leg, painful, and perhaps liable to bleed, while the veins in other parts are nearly in a natural state, or, at any rate, are not the source of particular uneasiness. In some of these cases I formerly applied the caustic potash, so as to make a slough of the skin and veins beneath it; but I found the relief which the patient experienced from the cure of the varix to afford but an inadequate compensation for the pain to which he was subjected by the use of the caustic, and the inconvenience arising from the tedious healing of the ulcer, which remained after the separation of the slough.

In other cases, I made an incision with a scalpel, through the varix and skin over it. This destroyed the varix as completely as it was destroyed by the caustic, and I found it to be preferable to the use of the caustic, as the operation occasioned less pain,

and as (in consequence of there being no loss of substance) the wound was cicatrised in a much shorter space of time. I employed the operation, such as I have described it, with advantage in several instances; but some months ago I made an improvement in the method of performing it by which it is much simplified; rendered less formidable not only in appearance, but also in reality; and followed by an equally certain, but more speedy cure.

It is evident, that the extensive division of the skin over a varix can be attended with no advantage. On the contrary, there must be a disadvantage in it, as a certain time will necessarily be required for the cicatrisation of the external wound. The improvement, to which I allude, consists in this: that the varicose vessels are completely divided, while the skin over them is preserved entire, with the exception of a moderate puncture, which is necessary for the introduction of the instrument with which the incision of the veins is effected. Thus the wound of the internal parts is placed under the most favourable circumstances for being healed, and the patient avoids the more tedious process, which is necessary for the cicatrisation of a wound in the skin above.

For this operation I have generally employed a narrow, sharp-pointed bistoury, slightly curved, with its cutting edge on the convex side. Having ascertained the precise situation of the vein, or cluster of veins, from which the distress of the patient appears principally to arise, I introduce the point of the bistoury through the skin on one side of the varix, and pass it on between the skin and the vein, with one of the flat surfaces turned forwards, and the other backwards, until it reaches the opposite side. I then turn the cutting edge of the bistoury backwards, and in withdrawing the instrument the division of the varix is effected. The patient experiences pain, which is occasionally severe, but subsides in the course of a short time. There is always hæmorrhage, which would be often profuse if neglected, but which is readily stopped by a moderate pressure made by means of a compress and bandage, carefully applied. The same pressure which is necessary for the

suppression of the hæmorrhage, is useful, as it keeps the divided surfaces in contact, so that they may have the opportunity of uniting by the first intention. With a view to the more certain attainment of this last object, care should be taken not to divide very extensively the soft parts below the varicose vessels. If the edge of the bistoury be sufficiently sharp, a moderate pressure will answer the purpose required; and if the pressure be considerable, a wound much deeper than is necessary will be the consequence. With the same view, the patient should be kept for the first four or five days in bed, in a state of perfect quietude, and when the bandage which has been applied is removed, this should be done with the greatest caution, lest any union which may have taken place be destroyed, in consequence of the uniting substance not having as yet acquired the due firmness of texture. By attending to these circumstances, an immediate cure of the wound is generally effected; where it is otherwise, no very considerable time is necessary for it to become healed by the process of granulation.

In every case, in which this operation has been hitherto performed, I have found it to be followed by the obliteration of the varix, and, indeed, it is difficult to conceive how it should fail in producing this effect. Sometimes no vestige of the divided veins has been to be distinguished afterwards; at other times they have remained for a certain period full of solid coagulum, which has gradually been absorbed. This difference probably depends on the different degrees of pressure made by the compress and bandage, and on the circumstance of the pressure being confined to the line of the incision; or of its being extended over the whole

removal of the bandages; when it has been of a large size, it has begun to heal rapidly, although it had made perhaps little or no progress towards amendment under the treatment which had been previously adopted. Where there has been a varix below the ulcer, the division of it has been attended with more relief than that of the varix above the ulcer in other cases.

Inflammation of the coats of the veins has not occurred in any of the cases in which I have hitherto adopted this method of treatment. I have already observed that there are some reasons for believing that the venous branches are less liable to be inflamed, in consequence of mechanical injury, than the trunks, in which they terminate. But, perhaps, something is also to be attributed to the integuments over the wounded vein being left entire. It is not unreasonable to suppose that a vein under these circumstances is not equally disposed to take on the action of inflammation with one which, after its division, is exposed to the contact of the air or other extraneous substance. The difference of the injury corresponds to that which exists between a simple and compound fracture, and it seems probable that there should be, to a certain degree, a corresponding difference in the effects which are produced.

In two or three cases inflammation of the adipose and cellular membrane has taken place, producing pain and tenderness of the limb, and a slight degree of fever; but this has speedily subsided with only this ill consequence, that the wound has failed in becoming united by the first intention, and that the healing of it has been effected afterwards, by the more tedious process of suppuration and granulation. The treatment in these cases is very simple. Cold lotions may be applied in the first instance, for the purpose of moderating the inflammation. When suppuration has begun, the parts may be fomented and poulticed, and the ultimate cure of the small abscess which remains may be promoted by a moderate pressure made with strips of linen spread with soap cerate, applied circularly round the limb.

In two instances the operation has been followed by an attack

of erysipelas; but this must be regarded as an accidental occurrence, there having been at the same time several other patients in the hospital labouring under this disease.

Having made these general observations, I shall not intrude on the patience of the Society, by giving a detailed account of the whole of the cases from which they are drawn. From those of which I have preserved notes, I have, however, selected the four following, the relation of which will be sufficient to illustrate the remarks which have been made, and to explain the circumstances connected with this subject which principally demand the attention of the surgeon.

Case I.

Mary Narraway, 45 years of age, was first admitted into St. George's Hospital on the 12th of October 1814; on account of pain, swelling, and ulcers of the legs, with many large clusters of varicose veins.

October 15th.—Two clusters of varicose veins, which were larger and occasioned more uneasiness than the rest, situated on the posterior part of the calf of the right leg, were divided, with the skin over them, by two incisions. There was considerable hæmorrhage, which was stopped by the application of a bandage.

Some inflammation of the skin and cellular membrane took place after the operation, for which she was bled. The wounds made by the operation were not completely healed till after some weeks. She was then affected by an inflammation of the eyes, or

ago, when a small ulcer took place on the inside, a little above the inner ankle.

At the time of her readmission there was a very painful ulcer of the size of a sixpence, on the inside of the right leg, with some varicose veins above and below the ulcer. The whole of the posterior and outer part of the leg, from the cicatrix downwards, presented no appearance of varicose vessels, and was free from pain; but the pain in the ulcer on the inside was such that she could scarcely bear to stand in the upright position.

In the left leg there were the same clusters of varicose veins which had existed when she was in the hospital formerly, but somewhat increased in size, and a quantity of purple discoloured skin on the inside. She said that she had for a considerable time laboured under a painful varicose ulcer of this leg, which had at last healed under the use of adhesive plaster.

February 10th. The cluster of varicose veins above, as well as that below the ulcer of the right leg, were divided in the manner described in the former part of this communication; the skin over them being left entire. The division of the veins occasioned considerable pain, which subsided in about an hour and a half.

February 14th. On removing the bandage, the ulcer was found perfectly healed. She was free from pain. The wounds made by the operation had healed by the first intention.

March 4th. There was still a slight tenderness in the situation of the wounds; otherwise she was free from all uneasiness. There were no remains of the varices which had been divided.

Case II.

Anne Sadler, 38 years of age, was admitted into St. George's Hospital on the 21st of August 1815, on account of varicose veins of the left leg, with a varicose ulcer of the inner ankle. She complained of great pain on the inside of the leg, which tormented her day and night.

On the 17th of September two large varicose veins in the inside of the leg were divided by means of the bistoury introduced

obliquely under the skin. One of these veins was situated about an inch and a half above the inner ankle, and the other about four inches higher, on the inside of the leg.

The wounds made by the operation inflamed so as to suppurate, and afterwards healed by granulation.

In the beginning of October the wounds were completely cicatrised; the ulcer of the inner ankle was skinned over; no vestiges were perceptible of the veins which had been divided. She was free from all uneasiness, except a very slight degree of tenderness in the situation of the wounds made in the operation.

October 9th. She was discharged from the hospital as cured.

Case III.

William Haines, 52 years of age, was admitted into St. George's Hospital on the 6th of January 1816.

He had two varicose ulcers on the inner ankle of the left leg, one of the size of a shilling, the other smaller. These ulcers had existed for two years, and were exceedingly painful. There was a considerable varicose vein below the ulcer, and another of a larger size above; extending upwards from the ulcers, to join the vena saphæna major. There were two clusters of varicose veins on the calf of the same leg, connected with both the saphæna major and saphæna minor; one of them of a very large size.

The veins of the other leg were varicose in many parts, but there were no ulcers.

January 13th. The varicose vein below the ulcers of the left leg

of the operation were removed. The ulcers were healed. The wounds made by the bistoury had united by the first intention.

January 19th. The larger of the two varicose clusters on the calf of the leg was divided.

January 24th. The bandages were removed. The wound made by the last operation had also united by the first intention. The leg was bound up in strips of linen spread with soap plaster, and a bandage over them.

February 20th. He left the hospital. At this time the veins of the right leg were in the same state as at the time of his admission. There were no remains of the veins which had been divided on the left leg; there was no vestige of the ulcers, and the discoloured skin round them had recovered its natural appearance. He was desired to continue the use of the bandage on both legs.

Case IV.

Patrick Curley 50 years of age was admitted into St. George's Hospital on the 17th of January 1816.

He had a varicose ulcer on each ankle of the left leg, not less than one inch and a half in diameter. There was an extensive cluster of varicose veins on the inside of the leg, above the ulcer of the inner ankle; and a smaller cluster on the outside above the other ulcer. There was also a cluster of varicose veins on the calf of the leg. He had violent pain in both ulcers.

January 18th. The varicose vessels on the inside of the leg were divided in three places in the same manner as in the last case. The operation occasioned considerable pain, which lasted for four hours.

January 21st. On removing the bandages, the incisions made in the operation were found to have healed by the first intention. The ulcers appeared more healthy. They were dressed with strips of adhesive plaster. He did not leave his bed until the 31st of January. He was now free from all uneasiness in the inside of the leg; but had a good deal of pain in the other ulcer.

February 20th. The ulcer on the inside of the leg, below the divided veins, was almost completely healed. The ulcer on the outside of the leg was somewhat, but very little smaller. He complained of its being very painful, so as to disturb his rest at night. Three varicose veins were divided above, and one below the ulcer. The pain of the ulcer was immediately relieved, and he slept better on the following night than for several nights previous.

Febuary 24th. He was unfortunately seized with erysipelas affecting the whole of the left leg, and attended with the usual constitutional symptoms. The erysipelas terminated in abscess, the matter of which it was found necessary to evacuate by three punctures in the foot and calf of the leg. When the erysipelas had subsided, the ulcer on the inside had been completely cicatrised for a considerable time; the ulcer on the outside was nearly cicatrised also. There were no evident remains of the divided varicose vessels.

From the result of the foregoing and of many other cases, I am induced to conclude that the operation which has been described may be frequently employed with great advantage to the patient. At the same time I wish to be understood as recommending the adoption of it not indiscriminately, but with a due attention to the circumstances of each individual case. The cases for which it is fitted, are, not those in which the veins of the leg generally are varicose, or in which the patient has little or no inconvenience from the complaint, but those in which there is considerable pain referred to a particular varix, or in which hæmorrhage is liable to take place from the giving way of the dilated vessels, or in

ON
INJURIES OF THE BRAIN.

FROM VOLUME XIV. OF THE MEDICO-CHIRURGICAL TRANSACTIONS, 1828.

SECTION I.

IT is my intention in the following pages to lay before the Society some observations relating to injuries of the brain, and the treatment which these injuries require. If any apology be necessary for this undertaking, I may remark, that I have been led to it by the great importance of the subject, and also by this consideration, that, although much information may lie, as it were, scattered throughout the mass of surgical literature, no practical writer, as far as I know, has attempted to make such a collection and arrangement of facts as will enable the surgical student to take a distinct and connected view of all the parts of this curious and interesting inquiry. The present paper contains only a part of the observations which I have to offer, namely, those which relate to the first or immediate consequences of the injury. Should these be favourably received, I shall venture, on a future occasion, to communicate to the Society a second series of observations relating to those more remote consequences which are connected with inflammation of the brain, and its membranes, or which arise after inflammation has subsided.

Further observations on this subject were left in MS. by the Author, and will be found in this Volume—C. H.

Section II.

Immediate Effects of Injuries of the Head as indicated by Dissection.

In treating of injuries of the brain, of course I mean to include the consideration, not only of those by which the brain is affected in a direct, but also of those by which it is affected in an indirect manner. Wounds and contusions of the external parts of the head demand our attention, inasmuch as they may be, and not unfrequently are, followed by disease of the more important parts contained within. Among the effects produced, we are to distinguish those which are the immediate result of the injury, and those which are to be attributed to inflammation and its consequences. In the former we are still further to distinguish the actual derangement or destruction of the natural organisation, such as it is disclosed by dissection, and the symptoms produced during the life of the patient by the disturbance of the functions of the injured organ; attempting at the same time to view these two orders of facts in connection with each other, as the method by which, on this as well as on other occasions, we may be the best enabled to found the practical art of surgery on the basis of a scientific pathology.

The appearances which are observable on dissection in a person who dies soon after an injury of the head, are very various, and may be variously complicated; but they admit of being classed under the following heads:—

the pericranium, or the pericranium itself may be torn off with it so as to expose the surface of the bone. Of these injuries, however slight may be the apparent difference between them, the latter is, as I shall show hereafter, likely to produce much more serious consequences than the former.

3. If a blow be inflicted on the head of the dead subject, the small vessels which connect the dura mater to the inside of the bone, at the part where the blow is inflicted, become ruptured; and in consequence the dura mater is separated from the bone to a greater or less extent. This, which happens in the dead body, may happen in the living body also, and is not an unfrequent consequence of an injury of the head. The separation of the dura mater is sometimes very extensive. A boy twelve years of age, fell from a height of fifty feet, and struck his forehead against the ground. He was admitted into St. George's Hospital in a state of stupor, in which he lay for three days, when he died. On dissection, besides a large extravasation of blood on the inferior surface of the brain, the dura mater was found to have lost its adhesion to the bone everywhere, except in the basis of the cranium, and the external surface of that membrane had a brown and sloughy appearance.

4. The cranium may be fractured in all varieties of ways, from the most simple fissure to the most complicated fracture accompanied with depression and extending in a number of directions. A fracture in most instances takes place in the upper part of the cranium. Fractures of the basis are always the consequence of very severe contusion, and recoveries from these accidents are comparatively rare, not because a fracture of the basis is in itself more dangerous than a fracture elsewhere, but because it is almost invariably complicated with extensive injury of other and more important parts.

A fracture generally occurs in that part of the cranium on which the blow has been inflicted. But we find that in cases of fracture of other bones, the fracture is often situated at some distance from the part which is immediately exposed to the shock

of the injury, as when the fibula is broken a little above the outer ankle in consequence of the foot having been twisted outwards, or the ribs are broken in the side in consequence of a blow on the sternum; and some French writers have supposed that fractures of the cranium occur in the same manner, being produced by what they have denominated the *contre-coup*.

It has been observed to me, however, by Mr. Earle, that he has not known a fracture of this kind to take place except where the blow seems to have operated in such a manner as to impel the occiput forcibly against the atlas, the line of fracture passing through the former bone, where it rests on the latter. My own experience corresponds very nearly with that of Mr. Earle. The only well-marked cases of fracture of the cranium, in which the fracture could be attributed to the effects of the *contre-coup*, which have fallen under my own observation, were similar to those which he has mentioned. I do not, however, mean to assert that such fractures absolutely never occur independent of the reaction of the atlas. Among the cases recorded in the 'Prize Memoirs of the French Academy of Surgery,' there are some which show that the thing does happen,* and Mr. Bell has offered an ingenious and scientific explanation of the mode in which it happens. It is, however, worthy of remark, that the only two cases which Mr. Bell has adduced in illustration of what he has advanced, are those in which the fracture extended across the occiput, in one case passing through, and in the other case passing close to, the foramen magnum of that bone.

In all cases of fracture of the cranium, with depression of bone,

it is of importance to observe that the division of the inner does not correspond to that of the outer table of the skull, the former being always broken to a greater extent than the latter. In consequence of this the actual depression is greater than it would appear to be from the mere inspection of the external fracture.

I have seen a case in which there was a fracture with distinct depression of the inner table, while there was a simple fissure which was scarcely perceptible, and that without the smallest depression of the outer table. But more remarkable instances of the kind are recorded by authors. M. Saucerote,* in the 'Prize Memoirs of the French Academy,' quotes a case from Tulpius, in which there were extensive fissures of the inner table of the skull, although the outer table remained uninjured; and another from Parey, in which, while the outer table was entire, the inner table was broken into splinters, some of which were actually driven into the substance of the brain. Dr. Hennen also in his 'Treatise on Military Surgery,'† gives an account of a case similar to the last, in which the inner table was splintered, and at one part driven more than half an inch into the membranes of the brain, although there was not even a fissure of the outer table. The greater elasticity of the outer table of the skull, and the greater brittleness of the inner table, seem to afford the only reasonable solution of these phenomena.

5. In young children we sometimes find the cranium depressed or indented after a blow on the head, and in the course of a few days restored to its natural level without the aid of a surgeon. I suppose that in these cases the earthy part of the bone has given way, while the animal part has remained entire, so that there has not been a complete fracture or actual solution of continuity, and that the pulsations of the brain constantly operating against the inner surface of the bone, have been the means of elevating the depression. I have had no opportunity of verifying or contradicting this opinion by dissection, but it corresponds to what we know to

* Vol. iv., 8vo edition, 1819, p. 322.

† P. 323, second edition.

happen in cases of injury done to other bones during the period of childhood.

6. The disjunction of the sutures is much more rare than fractures of the cranium. It is evident that this cannot happen except in those who are not much advanced in life, and in whom the sutures are not completely consolidated. Such a case is always to be regarded as one of peculiar danger, not so much because the disjunction of the sutures is in itself likely to lead to bad consequences, but because the force necessary to produce it is so great, that it is also likely to produce extensive and serious injury of other parts.

7. Extravasations of blood within the cranium, in consequence of a blow on the head, occur in various situations: 1st, between the bone and dura mater, and here the extravasation may arise from a rupture of the small bloodvessels by which the dura mater is connected to the bone, or from a laceration of the trunk or branches of the middle meningeal artery. There is, however, never any considerable hæmorrhage from the former source. At least all the experience which I have had on the subject tends to confirm the opinion advanced long ago by Mr. Abernethy, that blood is never poured out in such quantity as to produce a dangerous pressure on the brain, except where the middle meningeal artery has been lacerated, and from this vessel the hæmorrhage is sometimes very copious. I do not recollect to have seen it lacerated, except in combination with fracture running across the bony canal in which it is lodged; cases are however recorded by authors, in which the artery has been opened into, and bleeding has taken

tunica arachnoides and pia mater are connected with each other. Large extravasations are sometimes found on the upper surface of the brain, but more frequently on its basis. In the latter situation, the hæmorrhage is usually the consequence of a rupture of the substance of the brain. As a blow on the abdomen may lacerate the substance of the liver or spleen, and occasion hæmorrhage into the peritonæal cavity, so may a blow on the head cause a rupture of the tender substance of the cerebrum or cerebellum, and hæmorrhage into the cavity of the dura mater. These cases generally afford examples of the *contre-coup*. The rupture of the brain rarely takes place at the exact spot at which the blow is inflicted; and the great irregularities which exist on the inner surface of the basis of the cranium, sufficiently explain wherefore the inferior is more liable to be ruptured than the superior surface of the brain.

Wounds of the sinuses sometimes bleed profusely where there is a free opening in the bone made by accident or operation, through which the blood can readily escape. But a very slight pressure is adequate to the suppression of this as well as of other venous hæmorrhage; and I have never known an instance in which there was such a collection of blood as was capable of interfering with the functions of the brain, between the dura mater and the bone, or between the dura mater and the brain, in consequence of a wounded sinus. There is often a considerable effusion of blood from the ear, especially in cases of fracture of the basis of the cranium. This may, as far as I know, sometimes arise from other sources; but it seems probable that it must, in most instances, arise from the laceration of the lateral sinus, where it extends downwards behind the petrous process of the temporal bone and the external meatus; and in one instance I ascertained it to have been so by the examination of the body after death. In another case which fell under my observation, there was hæmorrhage from both the ear and the nostrils. The patient, a boy, died shortly after the accident; and it was found on dissection that there was a fracture of the base of the cranium, with laceration of the

cavernous sinus, and that the hæmorrhage had taken place from the sinus.

7. There may be all descriptions of wounds of the brain and its membranes, punctured, incised, and lacerated, with or without loss of substance: and with these, the effects of contusion which have been already enumerated, may be variously combined.

Section III.

Concussion of the Brain.

It is evident that many of those consequences of an injury of the head which are disclosed to us by dissection, are not likely to be marked by any peculiar symptoms in the living person, at least not previous to the access of inflammation. Wounds and lacerations of the brain and compression of the brain, whether it arise from extravasated blood or a depression of bone, may impair or destroy the functions of that organ; but neither simple fissures of the cranium, nor disjunction of the sutures, nor separation of the pericranium or dura mater, are in themselves adequate to produce such effects in the first instance, although they may lay the foundation of serious disease afterwards.

But it has been long since established by the investigations of surgeons, that another cause, besides those which are rendered manifest by dissection, may be concerned in producing the symptoms which immediately follow a contusion of the head. A man receives a blow on the head; he becomes insensible, and continues so for a few minutes or for several hours. He dies in

suffered from concussion of the brain; and it is to one of these three causes, namely, concussion, compression, and wounds of the brain, that the symptoms which immediately follow an injury of the head, and which are antecedent to those produced by inflammation, are to be referred.

Opportunities of inspecting the brain, where the patient has laboured under symptoms of concussion, may arise, 1st, where the concussion has so disturbed the functions of that organ as to have been in itself a cause of death (which is, on the whole, a rare occurrence). 2ndly, where the concussion of the brain has been complicated with other and still more serious mischief. We learn from such examinations, that the symptoms which are ascribed to concussion do not depend on any such derangement of the organisation as admits of being disclosed to us by dissection. The brain appears to retain its natural structure unimpaired. We are not however, justified in the conclusion that there is therefore in reality no organic injury. It is difficult to conceive in what other manner concussion of the brain can operate so as to produce the effects which it is known to produce; and if we consider that the ultimate structure of the brain is on so minute a scale that our senses are incapable of detecting it, it is evident that there may be changes and alterations of structure, which our senses are incapable of detecting also. The speedy subsiding of the symptoms of concussion does not contradict this opinion. A deep incised wound in other parts of the body may, under certain circumstances, be completely and firmly united in the space of twenty-four hours; and it is easy to suppose that the effects of a much slighter injury may be repaired in a still shorter space of time.

The disturbance of the functions of the brain, which is the consequence of concussion, may exist in various degrees, and may be of various duration.

In many instances there is at first complete insensibility to external impressions. The patient lies as if in a state of apoplexy, from which however he recovers in the course of a few minutes. In some instances the recovery is complete; the patient rises and

walks away as if nothing unusual had occurred. In other cases this state of total insensibility is followed by one in which the sensibility is impaired, but not destroyed. The patient is not affected by ordinary impressions, but if spoken to in a loud tone of voice, he will shift his position, and answer in a peevish manner. Sometimes he is in a state of imperfect delirium, talking in an incoherent and rambling manner, as if intoxicated. The pupils contract on exposure to light, and are sometimes more contracted than under ordinary circumstances. There is no paralysis. The respiration in the great majority of cases is performed easily and naturally; in a few instances only it is laboured, and approaching to being stertorous. These symptoms may wholly subside in the course of a few hours or they may continue for three or four days. In the latter case it frequently occurs that the patient regains his sensibility for a time, and then relapses into his former condition. Where inflammation of the brain follows the injury done by concussion, it may be that the primary effects of the concussion are entirely relieved, so that there is a considerable interval of sense before the inflammation shows itself. But it may be also that there is no such interval, and the symptoms of concussion, in this last case, are gradually and imperceptibly converted into those of inflammation.

Concussion of the brain in almost every instance occasions head-ache; sometimes a slight head-ache which is speedily relieved; at other times an intense headache, which may remain for some days, a solitary symptom, after all other symptoms have vanished. Sickness and vomiting for the most part are early

horses, when he received a kick from the animal on the head. He did not fall, nor was he actually insensible or stunned; but he entirely forgot in what employment he had been engaged at the time of receiving the blow. Being unable to account for the time which had elapsed, he concluded that he had been asleep: said so to his fellow servants, observing at the same time that 'he must set to work to clean the horse, which he ought to have done before intead of going to sleep.' A boy going down into the hold of a ship fell from a considerable height, and struck his head. He lay insensible, as it appeared from the observation of his shipmates, about half an hour, when he came upon deck without any assistance. Nevertheless on the following day all the circumstances of the accident had passed from his memory. Some time afterwards when he was received into St. George's Hospital, I found that he knew nothing of the accident except from the report of others. He had not only entirely forgotten the accident itself, but he did not even remember his having gone down into the hold of the vessel before the accident, nor his having come upon deck afterwards; and he never regained his recollection on these points. Desault mentions the case of a man, who, after a blow on the head, at first had no recollection except of recent events; but afterwards a change took place, in consequence of which his memory failed him as to recent events, while he could remember those which had occurred in childhood.

A number of circumstances, which it is unnecessary to enumerate, as every physiologist is well acquainted with them, tend to show that the influence of the brain is by no means necessary to the action of the heart; which may, under certain circumstances, continue uninterrupted, even after the entire removal of the head. Nevertheless, in cases of concussion of the brain, we generally find the circulation more or less affected; the pulse intermitting, irregular, feeble, perhaps scarcely perceptible, and the patient in a state approaching to that of syncope; and such may be his condition for a few minutes, or for the first four or five hours after the infliction of the injury. The connection

and sympathy which exist between the different parts of the nervous system, afford a reasonable explanation of this apparent anomaly, which, however remarkable it may be, is not more remarkable than the syncope which not unfrequently follows the first introduction of a bougie into the urethra, or that which is the consequence of many other trifling injuries of parts remote from the centre of the circulation, and exercising no direct influence over the functions of the heart.

In those cases in which concussion proves fatal, it appears to be this disturbance of the heart's action which is the immediate cause of death. In general when the patient has lain for some time in the state which has been described, a reaction of the circulating system takes place, and the pulse beats with greater strength in proportion as the failure of it was greater in the first instance. But where the shock has been unusually severe, there is no such reaction. The pulse becomes more and more feeble, more irregular and intermittent; the extremities grow cold, and at last the action of the heart being altogether suspended, the patient expires. In some cases, even after reaction has begun to take place, it seems as if the constitution was unequal to the effort; there is another failure of the circulation, the result of which is the same as if the patient had never rallied from the beginning.

Section IV.

Compression of the Brain

physiological explanation of the phenomena which arise in such cases. It has been usually held that the substance of the brain is actually compressed; but Mr. Bell observes very truly that we have no more right to believe that the substance of the brain admits of being compressed, than that water is compressible; and he infers, that what is called compression of the brain, operates not on the substance of the brain itself, but simply on its blood-vessels; lessening their diameter, and thus preventing that due supply of scarlet arterial blood which is necessary to a due performance of the vital functions. It is evident, indeed, that the effect which compression of the brain produces on its vessels must be to a greater or less extent such as Mr. Bell has described it to be. It may, however, be urged on the other hand, first, that in some cases symptoms similar to those which arise from compression take place where there is a preternatural determination of blood to the head; where the vessels, instead of being empty, are actually overloaded; and that in these cases the symptoms are relieved by drawing blood from the jugular vein, or from the veins of the arm; as if the pressure occasioned by too much blood in the vessels was productive of nearly the same effects on the brain, with that arising from blood in a state of extravasation: secondly, that, although we admit the substance of the brain to be incapable of being compressed into a smaller compass, yet that the effect of all pressure on it must be, and is, to alter the position and relative situation of the delicate fibres of which its minute structure is composed, and that we need seek no further explanation of the symptoms which are met with in these cases.

In whatever way compression of the brain operates so as to disturb the functions of that organ, it is difficult to explain wherefore the symptoms to which it gives rise are sometimes slight, and at other times urgent, although occurring under circumstances apparently similar. A depression of bone, which in one instance produces comparatively little effect, in another case occasions a manifest destruction of sensibility: and the same observation may be made respecting internal extravasations of blood. Every

practical surgeon must have observed that there are differences in the symptoms produced, which are not to be accounted for by any difference in the quantity of pressure, nor in the particular part of the brain which is affected by it. At the same time it is undoubtedly true, that, for the most part, the patient suffers more from an extensive than from a slight depression; more from a large than from a small extravasation. There is reason to believe that pressure is on the whole more dangerous when it affects the lower part of the brain than when it affects the upper part; and it has appeared to me that more urgent symptoms are produced by a given quantity of blood, when it is effused into the cells between the tunica arachnoides and pia mater, than when it is collected in one mass so as to produce a less general pressure.

Having made these preliminary observations, I shall proceed to consider the particular symptoms which arise from pressure on the brain.

1. *Pain in the Head.*—The blow which occasions a fracture and depression of the cranium, or an extravasation of blood within the cranium, is likely to produce concussion of the brain also, and as pain in the head is a symptom of the latter injury, it may be a question, in many instances, to which of these two causes it is to be attributed. That intense pain in the head may, however, be wholly dependent on pressure on the brain, is proved by a case in which a patient under my care laboured under this symptom, and no other, except, indeed, that the pupil of one eye was preternaturally dilated. There was a fracture with depression of a very small portion of one parietal bone, and immediately on the de-

the eye, and the loudest voice may be uttered in the ear, without any evident effect being produced on the sensorium. Where the cause of these symptoms is a fracture and a depression of bone, they show themselves immediately after the infliction of the injury; but where they depend on an extravasation of blood, as in many instances, the extravasation may take place slowly, so an interval of time, an hour for example, may elapse before the patient becomes insensible. Not unfrequently there is insensibility from concussion of the brain in the first instance; then the patient recovers, and afterwards, as the blood is gradually effused within the cranium, he relapses into his former state of insensibility. These observations were made first by Le Dran, and afterwards by Mr. Pott, and it is needless to remark how great is their importance, as connected with the diagnosis of these different kinds of injury. But even when pressure on the brain is actually established, the insensibility to which it gives rise is liable to some degree of variation. At one time it may be perfect; then the patient may show some signs of consciousness, and then relapse into a state of perfect stupor. It may be observed, that there is especially an increase of sensibility after blood-letting, and that as the effect, which the loss of blood has produced on the circulation subsides, so the sensibility becomes again diminished.

If these observations be correct, it is evident that there is not any such difference in the character of the insensibility produced by concussion, and that produced by compression of the brain, as will enable us at once, and in all cases, to distinguish these two kinds of injury from each other. Those who are led to take a different view of the subject may indeed urge, that in some cases there is considerable pressure on the brain, without any symptoms at all; and that when, in a case of fracture, and depression of the cranium, or extravasation of blood within the cranium, the patient lies with a partial loss of sense, this is to be attributed not to the actual pressure, but to the concussion of the brain, which the violence inflicted must necessarily have occasioned in a greater or less degree. I might, however, refer to several cases, to which

this explanation cannot be well applied; but a single example will be sufficient. A woman received a blow on the head; after which she was able to walk home, complaining that her head was hurt, and that she had received her death-blow. In an hour after the accident, she gradually became insensible. About fourteen hours afterwards she was brought to St. George's Hospital, labouring under symptoms precisely corresponding to those which have been described by Mr. Abernethy, as arising from concussion. These symptoms continued, and even rather abated than increased, until the third day, when an aggravation of them took place, and she expired. On examining the body, eight ounces of blood were found effused underneath the dura mater. The circumstance of there having been no loss of sense in the first instance, and the interval of an hour which elapsed between the period of the accident and that of the occurrence of the symptoms, sufficiently demonstrate that they were the consequence of pressure produced by the hæmorrhage, and not of the concussion.

It sometimes happens that there is a destruction of sensibility in one part of the system, while the general sensibility is impaired only in a slight degree. An old man was admitted into St. George's Hospital, who had been run over by a cart. There was a fracture with depression of one parietal bone. He was sensible, but slow in giving answers, and peevish, and it was observed that he was totally blind. Mr. Gunning removed a portion of the parietal bone with the trephine, and elevated the depression; but the operation produced no change in the symptoms. About thirty-six hours after the accident, the pulse became frequent and le-

to press on the optic nerves immediately behind the orbits, and to explain, in the most satisfactory way, the total loss of sight. Such cases as that which follows are not very uncommon. A gentleman was thrown from his horse, and received a blow on the head. He lay with well-marked symptoms of compression of the brain, which, however, began to subside in a few days. In a short time, his general sensibility was completely restored, but there was a numbness, or loss of sensation, of one hand, for more than a year afterwards.

3. *Paralysis.*—Here, as on other occasions, the same cause which prevents the brain receiving impressions from the nerves, prevents it also transmitting its influence through the nerves to the muscles. Where the destruction of sensibility is complete, the voluntary muscles are completely paralysed. In whatever position the patient may be placed, in that he remains motionless. The bladder, incapable of contraction, becomes preternaturally distended with urine; and the relaxation of the sphincter ani allows the involuntary discharge of fæces from the rectum. Afterwards the muscles of respiration become affected also; the patient breathes with stertor, as in a most profound sleep ; and the diaphragm contracts at longer and longer intervals, until respiration altogether ceases. It is this paralysis of the muscles of respiration which in ordinary cases of pressure on the brain is the immediate cause of death. Where there is an imperfect loss of sense, there are often no marks of paralysis whatever. At other times there is paralysis of one side of the body, while the muscles of the other side continue to obey the will as usual; and sometimes the paralysis is permanent. Dr. Hennen * gives an account of a patient who recovered with life from the effects of a fracture and depression of the left parietal and left side of the frontal bone; but fourteen years afterwards he was still paralytic in the opposite arm and leg.

Hemiplegia is, however, a much more rare occurrence where

* Military Surgery, p. 304.

pressure on the brain is the consequence of accidental violence, than it is in cases of apoplexy from a spontaneous rupture of a bloodvessel. The difference may reasonably be attributed to the different situation of the pressure. In cases of apoplexy, the extravasation is for the most part situated either in one of the ventricles, or in the substance of the brain; but after a blow on the head, the cause of pressure more commonly operates on the surface. Occasionally the paralysis is confined to one set of muscles, or even to a single muscle. There may be for example loss of motion in one hand, or a ptosis, or dropping down of one upper eyelid. In cases of hemiplegia after an injury of the head, the paralysis is on the side opposite to that on which the pressure exists; at least I have never met with an exception to this general rule. The observation, however, does not apply to more partial paralytic affections. A young gentleman fell from a coach-box, and struck the left side of his head against the wheel of the carriage: he was not stunned, but there was an ecchymosis of the left cheek and temple, a copious discharge of blood from the left ear, and the muscles of the left side of the face were rendered paralytic. When he laughed, the mouth was distorted to the right side; and he was unable to close the left eyelids. The loss of power over the muscles was not attended with any loss of sensation, and was not permanent, the recovery of the patient being complete in about three months. It seems reasonable to conclude that in this case the cause of the paralysis was pressure produced by the extravasation of blood on the portio dura of the nerve of the seventh pair, by which the muscles of the face are supplied

appears to me to admit of a question whether this symptom ought to be regarded as the consequence of simple pressure on the brain. We find it occur in cases of punctured and wounded brain, where there is no pressure; and it so happens, where it has fallen under my observation in cases of depression of bone or extravasated blood, and where the exact nature of the injury was afterwards ascertained, that the pressure has been always found to be complicated with wound or laceration of the substance of the brain.

The convulsive twitches to which I here allude are slight and only partial, and are to be distinguished from those violent fits of general convulsions on which I shall have to offer some observations hereafter.

5. *Affections of the Pupils.*—The state of the pupils varies very much in cases of pressure on the brain even under circumstances apparently similar. I have seen the pupils dilate with the absence and contract with the presence of light, although the patient lay in a state of complete insensibility, and did not seem to be at all conscious of the impressions made on the retina. But this is a rare occurrence, and for the most part where the other symptoms of pressure are present, the pupils are insensible and motionless; being generally dilated, but sometimes contracted. It is not uncommon for the pupils to remain for a time in a state of dilatation, then to become suddenly contracted, and after remaining so for a longer or shorter time, to become again dilated, these changes taking place independently of light and darkness. I have observed especially, where the pupils have been dilated, that they have frequently become contracted immediately after the abstraction of blood; the dilatation returning as soon as the immediate effect of the blood-letting on the circulation has ceased. Dr. Hennen mentions a case in which blood was extravasated among the membranes of the brain, and in which the pupils were observed sometimes to become dilated with an increase, and to contract with a diminution of light. In a patient in St. George's Hospital, in whom there was an extravasation of blood on the upper part of the right hemisphere of the cerebrum, and no cause of pressure elsewhere,

both pupils were insensible and motionless; but the right pupil was in a state of dilatation, and the left in a state of contraction. In another patient, in whom there was fracture and depression of the left parietal bone, the left pupil was permanently dilated, the right pupil being in a natural state. In a third case, in which there was a fracture and depression of the frontal bone above the right superciliary ridge, there was a dilatation of the pupil of the left eye; and again, in a fourth case, where there was a fracture and depression in the same situation as in the case last mentioned, and no cause of pressure elsewhere, both pupils were dilated and equally insensible, but immediately regained their sensibility and power of contraction on the depression being elevated.

As there may be general insensibility without the pupils being insensible to light, so there may be insensibility of one of the pupils without general insensibility, and even without loss of vision. A gentleman fell from his horse, received a severe contusion of the head, and was taken home, labouring under manifest symptoms of pressure on the brain. When, after the lapse of several days, these symptoms became somewhat abated, it was observed that the pupil of the right eye was dilated, and incapable of contraction; but his power of vision was unaffected. This symptom was accompanied with a ptosis of the right upper eyelid, and a numbness of the right hand. I believe that nearly a year elapsed before the pupil was restored to its natural condition.

6. *Affection of the Circulation.*—If concussion of the brain be capable of disturbing the action of the heart, it is not remarkable that the greater injury arising from pressure should produce its

less frequent, or less forcible than natural. The influence of pressure on the brain on the circulation is sometimes very manifest in cases of depression of the bone of the cranium, where the depression is relieved by an operation. A child, three years of age, was admitted into St George's Hospital having an extensive fracture of one parietal bone, extending into the adjoining portions of the temporal and occipital bones. Towards the posterior part of the parietal bone there was a considerable depression, with laceration of the membranes of the brain and of the brain itself. I assisted Mr. Gunning in an operation in which he removed a portion of the bone with a saw, and elevated the depression. Previously to the operation the pulse at the wrist was barely perceptible, but immediately afterwards it became distinct, and beat with considerable strength. A gentleman who held the child's hand during the operation observed the pulse to be suddenly restored at the very instant of the depression being elevated. Another patient (a man) was admitted into the hospital having a fracture with depression of the right side of the frontal bone extending into the right parietal. The pulse beat no more than forty times in a minute, but immediately on the depressed bone being elevated it rose to sixty in a minute.

7. *Sickness and Vomiting.*—These symptoms occur in some cases of pressure on the brain from injury, but it may nevertheless admit of a question whether they should or should not be referred to the actual pressure. The same injury which occasions a fracture and depression of the cranium, or an extravasation of blood within the cranium, is likely to produce concussion of the brain also. In cases where the symptoms of pressure are the most distinct, and there is complete insensibility, there is no disposition to vomit; and where I have had occasion to apply the trephine on account of a fracture and depression, and there was no sickness previously, I have sometimes known the patient to become sick and vomit immediately on the depression being elevated.

The symptoms of pressure on the brain vary in different cases, not merely as they may exist in different degrees, but as they happen to be variously combined with each other. We find also that there is a great difference as to the period of their duration. Of two individuals, in whom the early symptoms appear to be equally urgent, one may die in the course of three or four hours, and another may survive for several days; and among those who recover, we may find some in whom the symptoms wholly subside in the course of a few days, and others in whom some remains of them exist after the lapse of several months, or even of years. Even in fatal cases the symptoms are not in every instance uniformly progressive, and it is not very unusual for them in some degree to subside, recurring afterwards with increased severity.

Where bloodvessels have been ruptured or wounded in other situations, secondary hæmorrhage occurs in some instances at the end of a few days from the period of the injury having been inflicted. Does secondary hæmorrhage ever occur within the cavity of the cranium? In one case, which came under my observation, I was led to believe that this actually happened, causing sudden death after three or four days of apparent convalescence. As I have met with no other instance of the kind, I conclude that such occurrence is very rare; but probably it would be more frequent, if it were not that in the practice of modern surgery a very strict antiphlogistic regimen is usually pursued for a considerable time after the occurrence of the accident. The following is a brief outline of the case to which I allude.

A man, 35 years of age, on the afternoon of the 8th of Novem-

but before he could arrive the man had become insensible, and was found lying motionless with stertorous respiration and dilated pupils. Blood was taken from the arm, but the symptoms were not relieved, and he died in about half an hour after the commencement of the attack. On examining the contents of the cranium after death, a thin layer of blood was found extravasated in the cells between the tunica arachnoides and pia mater, where those membranes cover the posterior part of the two hemispheres of the cerebrum. In the lower part of the right anterior lobe of the cerebrum the substance of the brain had been ruptured, and underneath this part, between the dura mater and tunica arachnoides, there was a collection of about two ounces and a half of blood. This last had all the appearance of a recent extravasation, and seemed to afford a satisfactory explanation of the sudden alteration in the symptoms which immediately preceded the patient's dissolution : the hæmorrhage in the first instance having in all probability been checked by the blood-letting which was resorted to both immediately after the accident, and on his admission into the hospital.

Section V.

Wounds of the Brain and its Membranes.

Wounds of the dura mater, greatly as they aggravate the ultimate danger of the case, do not in themselves add to the symptoms which immediately follow the accident. It is when the period of inflammation has arrived, and not until then, that the marks of punctured or lacerated dura mater show themselves.

The pia mater and tunica arachnoides are so thin and delicate in their structure, and so intimately connected with each other, and with the brain itself, that we cannot conceive them to be wounded without the brain being wounded also. It would be idle therefore to treat of these two classes of injury as being distinct from each other.

The researches of modern science have demonstrated that the

brain is composed of various organs, intended to exercise very different functions: and the division of the substance of the brain made by the hand of the physiologist produces very different effects, accordingly as it detaches one or another of these organs from the rest of the nervous system. But those distinct results which are obtained with difficulty in experimental physiology are not met with in cases of accidental wounds. The symptoms produced by the latter are always liable to be complicated with those of concussion, and in a great number of instances are also complicated with those of compression of the brain. Accidental wounds rarely affect the cerebellum and medulla oblongata, or even the more deepseated and important parts of the cerebrum: and with respect to wounds of the cerebrum, such as are commonly met with, even without the complications produced by concussion, or depression of bone or extravasated blood, we find their effects to be so different in different cases, that they do not admit of being reduced to any general rule; and no data, which we have hitherto obtained, will enable us to predict the exact consequences to be produced by a wound of a given extent, or occurring in a given situation.

In illustration of this observation I may refer to two cases, related, the one by Morgagni,* the other by Dr. Hennen.† In the first of these cases a man received a punctured wound from a sharp instrument, which passed between the eye and the roof of the orbit, penetrating through the latter into the substance of the cerebrum to within a finger's breadth of the lateral ventricle. In the second case the extremity of an iron ramrod entered the cranium imme-

produced:—but what were the actual results? In Dr. Hennen's case, where the injury was the slightest, the patient was instantaneously deprived of life: while in Morgagni's case, where the injury was greatest, there were no symptoms whatever, and the patient was as if nothing unusual had occurred until the end of the third day, when suppuration was established.

Of these two cases, however, it must be allowed that the latter is to be regarded as being more in accordance with the general rule than the former. The experience of every individual who has had the opportunity of seeing many cases of injury of the head will afford examples of wounds penetrating into the substance of the brain, as well as of incised and lacerated wounds, in which the functions of the brain were not at all impaired, or only slightly impaired in the first instance. Even actual loss of the substance of the brain not unfrequently takes place without the occurrence of any urgent symptoms, and the patient may go on from day to day, with fresh portions of the brain oozing out of the aperture in the cranium, with his external senses perfect, his mental functions unimpaired, and free from paralytic affection.

It is not, however, to be supposed that there can be an extensive destruction of a part so important as the brain, without immediate death, or death in the course of a very few hours. In other cases in which the brain has been extensively lacerated, it has appeared to me that without the actual insensibility which follows concussion of the brain, there was a confusion of intellect beyond that which concussion usually produces. In many cases of wounded brain there are convulsive twitches of the muscles of the extremities. In a case in which there was fracture of the parietal bone, several splinters of bone having been driven into the substance of the cerebrum, on the splinters being removed, and when no evident cause of mischief remained except the wound which they had occasioned, the pupil of the eye of the opposite side remained preternaturally dilated. This is what might have occurred in consequence of pressure on the brain. It corresponds also to what we observe in cases of pressure, that wounds of the

brain sometimes occasion an unnatural slowness of the pulse. But the more urgent symptoms of pressure are wanting; and the peculiar danger of wounds of the brain arises, in the great majority of instances, not from the immediate effects of the injury, but from the extensive and intractable inflammation which takes place afterwards.

Section VI.

On some other Symptoms following Injuries of the Brain.

The symptoms of which I propose to give an account in the present section, also belong to the class of those which immediately follow an injury of the brain, that is, which show themselves previous to the occurrence of inflammation. I have, however, thought it better to give them a separate consideration, because there may be some doubts as to the exact nature of the injury of which these symptoms are to be regarded as the indication, and because there are several points respecting them which require to be elucidated by further observations.

1. A middle-aged man received a blow on the head, and was brought to the hospital with symptoms which were supposed to arise from concussion of the brain. These symptoms subsided in the course of one or two hours, but he remained afterwards completely deaf. His relations declared that his hearing had been perfect up to the period of the accident. He left the hospital at the expiration of three weeks, without the smallest amendment.

A young woman received a blow on the head, by which she

A middle-aged man slipped while walking, and struck the back of his head against the road; he was stunned for five or six minutes, then recovered so as to walk home. He saw objects double during that evening, and it was observed that he was deaf in one ear. He was kept awake by violent head-ache during the night. On the following day he had recovered from the double vision, but the other symptoms continued, and in addition to them he discovered that he had entirely lost his sense of smell, and that there was also a partial loss of the sense of taste. He was bled several times, and kept on a low diet, and under this treatment the head-ache gradually subsided, and at the end of about four months he had recovered his sense of hearing. When he consulted me between five and six months after the occurrence of the accident, he was in the following condition:—His pulse was seventy-two in a minute. He complained of a sense of noise in the right side of the head, especially in the morning and evening, but not during the night. He was impatient and irritable, especially when troubled respecting matters of business. He had no proper sense of smell, common odours were not perceived at all; but he *felt* the pungency of smelling salts, and they made his eyes water. With his taste he could distinguish bitter, sweet, and sour, but he was unable to distinguish flavours accurately. For example, he could perceive a difference between the taste of hops and that of sugar, but not between that of fennel and parsley; and the flavour of game was the same to him as that of other meat. Bitters had become disagreeable to him, though they had not been so formerly.

The late Mr. Grover of Hammersmith informed me of the case of a gentleman who had been under his care on account of an injury of his head, which entirely deprived him of the sense of smell. After some time, however, he began to recover of this symptom, and at the end of a year his smell was completely restored. I have already given an account of a case in which an injury of the head was followed by total blindness with permanent dilatation of the pupils, and this was found to have depended on

a fracture and displacement of the bone in the basis of the cranium producing pressure on the optic nerves. But here there were other symptoms manifestly depending on compression of the brain itself: whereas no such symptoms existed in the cases which I have just related. It is indeed difficult to conceive that pressure on the brain should exist in so great a degree as completely to destroy an entire class of sensations, and at the same time be so partial as not to affect any other function of the nervous system. On the other hand it is also difficult to regard these as the effects of concussion of the brain: since it is one of the characteristics of concussion to produce no more than a diminution of sensibility, and that diminution, instead of continuing for months or years, is completely relieved in the course of a few days, and probably in a much shorter space of time. However produced, these are not the only examples which experience affords of partial nervous affections following an injury of the brain. Dr. Hennen gives the history of a patient who lost his sexual powers after a wound of the occiput. The same author observes, 'The powers of speech are often lost while those of memory remain, and the sight is impaired while the hearing is perfect, and vice versâ. I have met with numerous instances of this, and have had patients who told me that they could hear distinctly what I said, and distinguish my voice from that of others, and have repeated my words as a proof both of this fact, and of their retention of memory, while they could not distinguish my person, or give utterance to their thoughts.'*

II. In some cases after an injury of the brain, we find the patient attacked by violent convulsions affecting the whole person.

A young man, a butcher, was standing under a beam of wood which supported a side of beef, when the beam gave way and fell. The side of beef came obliquely on his back, and the beam by which it was supported struck his head. He was not immediately stunned, but in about a minute he became insensible, and in ten minutes more he was seized with a fit, in which he was violently convulsed, so that four or five persons were required to hold him. He was bled, but without relief. The fit of convulsions lasted for nearly three hours, and then suddenly left him. He now complained of pain in the head, but was perfectly sensible. He recovered without any further symptoms, except that the pain in the head continued; and on this account he was bled twice or three times in the course of the ensuing week or ten days.

A gentleman, on the 8th of September, 1825, was thrown from his horse, and falling on the pavement, received a blow on the arm, which occasioned a fracture communicating with the elbow-joint, and another blow which caused the scalp to be separated for a considerable extent from the anterior part of the head, and also occasioned a fracture of the frontal bone, but without depression. He was taken up in a state of insensibility. He was in this state a few minutes afterwards, when he was seized with violent convulsions, his limbs being moved in various directions, and with such force, that it was with much difficulty that several persons could hold him. The convulsions continued for about half an hour, when they subsided, leaving him in a state of stupor. Blood was now taken from his arm, after which he began to regain his sensibility. On the following day his sensibility was completely restored, and he recovered without any further unfavourable symptoms.

In these cases the convulsions took place within a short period after the occurrence of the accident; but there are others in which the patient is affected in the same manner after the lapse of several days. Here the convulsions must often be combined with symptoms of inflammation, so that it may be difficult to determine whether they are to be regarded as connected with the original mischief produced by the injury, or as arising from the subsequent

inflammation. The following case, however, seems to prove that, in some instances at least, the convulsions which occur even at this second period depend on the former cause, and not on the latter.

A lad, 14 years of age, received a blow on the head, and became instantly insensible. He did not utter an intelligible word, nor could he be prevailed on to show his tongue, nor to swallow either medicine or the liquid nourishment which was offered to him. However, he moaned when disturbed, the pupils of his eyes were sensible to the stimulus of light, and there was neither stertor nor paralysis. These symptoms slowly subsided, and no new symptoms, such as could be regarded as the result of inflammation, had shown themselves, when at the expiration of five days after the accident he was seized with convulsions agitating his whole person. Blood was taken from him by cupping, but this afforded no relief, and in the course of the succeeding twenty-four hours he had as many as fourteen or fifteen attacks, each lasting from one to three minutes. On the following day, the state of the pulse not being such as to indicate the necessity of the further abstraction of blood, I determined to pursue an opposite plan of treatment. He was prevailed on to take beef-tea with toast; this was repeated at short intervals, and from the time of his beginning to take more nourishment, the convulsions abated, and in the course of another day had wholly ceased. From this time his recovery proceeded uniformly and favourably.

In two of the cases which have been just related, the other symptoms were such as might have arisen, and probably did arise, merely from concussion of the brain. This, however, does not prove the entire absence of extravasation, and there are some circumstances which may lead to the suspicion that something more than concussion is necessary to produce such attacks of convulsions as those which have been described, and which at any rate show that they may arise from other causes.

First, I have observed in experiments on animals, that a wound in the basis of the brain which causes extravasation of blood on

the surface of that organ, generally produces convulsions previous to that state of stupor and paralysis which immediately precedes death.

Secondly, the ordinary symptoms of concussion occur, and indeed are more complete, immediately after the injury is inflicted than at any subsequent period; whereas according to my experience, convulsions never occur until after a certain lapse of time, when extravasation may have begun to take place.

Thirdly, the following case occurred in St. George's Hospital, under the care of Mr. Keate. A man was admitted who had fallen from the top of a coach, and had struck his head. He was stunned, and continued insensible after being brought to the hospital. At the end of two days, when he had begun to recover from this state of stupor, he was seized with violent convulsions, affecting not only the muscles of his limbs, but also those of his face. The first attack of convulsions continued about six minutes; but this was succeeded in the course of an hour and a quarter by four similar attacks, and in spite of a considerable quantity of blood being taken from the arm. At the end of this time Mr. Keate saw him, and made an incision through the scalp at that part which had received the violence of the injury. A fracture about an inch in length was discovered at the posterior part of the left parietal bone, extending into the lambdoidal suture with a slight depression. At this part Mr. Keate applied a saw, and removed the depressed portion of bone. A small coagulum of blood was found lying on the surface of the dura mater; and this having been exposed, there was no recurrence of the convulsions.

I have not observed convulsions to take place where there are symptoms indicating the existence of considerable pressure on the brain. The pressure in these cases does not destroy the functions of the brain; it seems to act merely as a cause of irritation, and the operation of it may be compared to that of an exostosis, or other tumour, in producing fits of epilepsy. The circumstance of convulsions taking place after the lapse of some days when they did not take place in the first instance, may probably depend on

the brain having been rendered more susceptible by the loss of blood and other methods of depletion to which it was necessary to have recourse for the relief of the more early symptoms.

III. Occasionally, after an injury of the head, we find the patient in a state of furious delirium, raving and unmanageable. A man who had received a blow on the head was brought into St. George's Hospital in this condition, uttering loud exclamations, abusing and striking those who were near him, so that it was necessary for several persons to assist in holding him by force as if he were a maniac, while blood was being taken from his arm. As the blood flowed, the delirium left him. He remained with slight symptoms of concussion; and these also gradually subsided, leaving the patient in a state of health. Cases such as this might lead us to regard this state of furious delirium as the consequence of mere concussion of the brain. But the same observations may be made respecting these cases, as respecting those in which there are convulsions. The absence of the more urgent symptoms of pressure on the brain does not absolutely prove that no degree of pressure actually exists; and instances occur in which this state of the sensorium is manifestly combined with depression of bone or extravasated blood. For example:—A middle-aged man, who had received a blow on the head, was brought to St. George's Hospital, an hour after the occurrence of the accident, in a state of raving delirium. There was a wound over the right eyebrow, and a fracture of the frontal bone extending obliquely upwards with a considerable depression. The depression, however, was not elevated, as the delirium subsided on blood being taken from the arm. After this the man fell into a state of insensibility, from which, however, he could be roused, and then he complained of head-ache. On the following day he was more sensible, and from this period he recovered without any bad symptoms; but it was observed that the pupil of the right eye remained preternaturally dilated, and that it contracted very feebly on exposure to light.

A middle-aged man fell from a cart, and struck his head against the wheel. In about half an hour he was brought to St. George's

Hospital. He was sensible, and complained of pain in the head, but more of pain in one arm, which was discovered to have been fractured. At this time he had no other symptom, except that the right pupil was more dilated than the left. There was a wound of the scalp, and a fracture with a slight depression of the anterior and inferior part of the left parietal bone. He was put to bed, and while his head was being shaved he became delirious, furious, and unmanageable, so that it was necessary to restrain him by main force. On being bled, he became faint, tranquil, but not perfectly sensible. In half an hour the faintness had subsided, and he relapsed into his former state of raving delirium. He was again bled, and became more tranquil, but still not perfectly sensible. In the evening, twelve hours after his admission, as he continued insensible, Mr. Gunning applied the trephine in the situation of the fracture, and removed a portion of bone. The man appeared to be relieved, and spoke rationally after the operation. On the following day he was quiet, and sensible when roused, but not so to ordinary impressions. Early on the next morning he fell into a state of stupor, with stertorous breathing, a slow pulse, and cold extremities, and soon afterwards expired. On dissection there was discovered a disjunction of the coronal suture in some degree separating the parietal and frontal bones from each other. From a drachm to a drachm and a half of blood was extravasated between the dura mater and the right side of the frontal bone and the right parietal bone. There was also in some parts a slight degree of extravasation in the cells between the tunica arachnoides and pia mater. A small quantity of pus was found both between the dura mater and the bone, and between the tunica arachnoides and pia mater.

In another case where the patient was admitted into the hospital with the same symptoms of furious delirium, after the delirium had subsided he fell into a state of perfect stupor, from which he could not be roused until twenty ounces of blood had been taken from the arm; and when the immediate effects of the blood-letting had subsided, he again relapsed into the same state of stupor. The

pupil of one eye was observed to be preternaturally dilated, contracting in some degree, but imperfectly, on exposure to light. This patient ultimately recovered, and of course it was not possible to be made acquainted with the exact nature of the injury which he had sustained, but I was led to regard the state of complete insensibility in which he for some time lay, joined with the dilatation of one pupil, as a sufficient indication of the existence of pressure on the brain to a greater or less extent.

From the evidence here adduced, there seems reason to believe that furious delirium and convulsions occur after an injury of the head under nearly parallel circumstances. The former symptom, like the latter, may be produced by pressure on the brain, not however by such a degree of pressure as threatens completely to annihilate the function of that organ, but by that smaller degree of pressure which operates merely as a source of irritation. It must be admitted, however, that the subject is not exhausted, and that further observations are required for its complete elucidation.

Section VII.

Treatment of Concussion of the Brain.

Although the treatment which is required in the first period which elapses after an injury of the head is neither various nor complicated, yet, in order that it should be conducted with advantage, it is necessary that many circumstances should be taken into

the one consisting of the exhibition of stimulants and cordials, the other comprising blood-letting, and what are usually termed antiphlogistic remedies. Here, however, as on many other occasions, the opposition of opinion is probably greater in appearance than in reality; and I am inclined to believe that if the advocates of the respective systems were questioned on the subject, it would be found that the views which they entertain are not essentially dissimilar. I suppose that none of those who have suggested the exhibition of stimulants would actually be inclined to apply this practice to cases in which the pulse has regained its strength and regularity; and, on the other hand, I conclude that no one among those who have advised the use of the lancet would think of taking away blood when the patient lies with pale cheeks, and cold extremities, and a feeble and intermitting pulse—or would refuse to resort to the cautious exhibition of cordials and stimulants where these symptoms are so urgent that he is manifestly in danger of sinking, in consequence of the depressed state of the circulation which has followed the first shock of the injury.

Cases of this last description are, however, in reality of rare occurrence; and there are, indeed, sufficient reasons why we should regard that condition of the system which approaches to syncope, as being, in the great majority of instances in which it exists, conducive to the patient's welfare, and why we should wish to prolong, rather than to abridge, the period of its duration. The same blow which gives rise to symptoms of concussion frequently occasions the rupture of some small vessels within the cranium. The same state of the system which produces an enfeebled action of the heart is calculated to prevent the ruptured vessels from pouring out their contents; and the longer it continues, the less is the danger of internal hæmorrhage. If we artificially excite the action of the heart by the exhibition of wine and ammonia, we are in danger of inducing symptoms of pressure on the brain. If, on the contrary, we watch the gradual restoration of the pulse, and at the proper moment take from the arm a sufficient quantity of blood to prevent the heart resuming its wonted action, it is

probable that we may often succeed in checking or arresting an extravasation of blood on the surface of the brain, or among its membranes, which might otherwise prove fatal. There is also the following very important circumstance which is not to be overlooked in this part of the enquiry. A state of depression is followed by a state of excitement. As the patient recovers from the former, the pulse, with respect to fulness and strength, becomes raised above the natural standard; and it is evident that this affords an additional argument in favour of the practice which is here recommended.

The same views respecting the prevention of internal hæmorrhage which incline us to take blood from the arm in the first instance, cannot fail to influence our conduct afterwards. There is no evident reason why vessels, which have once bled, should not be liable to bleed again within the cranium, as well as in other situations. I have already mentioned a case in which a patient, who was apparently going on favourably, suddenly expired in consequence of such secondary hæmorrhage, on the fourth day after the occurrence of the injury. If similar cases are rare, this may reasonably be attributed to the remedies which modern surgeons, with few exceptions, do not fail to employ. At any rate, where so much is at stake, we are called upon to neglect no measures of precaution; and however small the danger from this cause may really be, the surgeon should provide against it, by frequently enquiring into the state of his patient; by urging the necessity of continued repose of body and mind, by limiting him to a scanty vegetable diet, by the exhibition of laxative medicine,

by repose and low diet, and depleting remedies. Often, immediately after being bled, the patient, who before was in a state of stupor, exhibits manifest signs of returning sense. Further, it may be urged that concussion is liable to be followed by inflammation of the brain or its membranes. Now, I do not mean to say that such inflammation can always be prevented, or that the abstraction of very large quantities of blood will make the patient a better subject for it if it should occur; but it seems reasonable to suppose—and our experience of these cases, and of other cases bearing an analogy to them, confirms the opinion—that there is less danger of inflammation where the antiphlogistic treatment has been carried to a moderate extent, and where the patient has been kept in a state of perfect quiet, than where bleeding and laxative medicines have been neglected, and the patient has been allowed to exercise his body and mind, and to live on his usual diet.

The quantity of blood which the vessels of the brain contain depends very much on the position of the head with respect to the rest of the body. Not only in cases of concussion, but in all other cases where there has been an injury of the brain, or one likely to affect the brain, the head and shoulders should be raised by additional pillows, so that the blood may have an easy descent to the right side of the heart. In addition to this, in severe cases of concussion, the head should be shaved, and compresses should be applied constantly, moistened with a cold evaporating lotion. Opiates should be avoided. It is difficult to conceive what good purpose they can ever have been expected to answer; and, at any rate, they tend to constipate the bowels, and not unfrequently cause a confusion of symptoms, the patient complaining of headache, of which it is difficult to say whether it belongs to the injury itself or to the opium.

In taking a view of the various satisfactory reasons which may be urged in favour of a particular plan of treatment in cases of concussion of the brain, we must not overlook the circumstance that this treatment may be carried too far: and we must endeavour to avoid the error which I have known some surgeons fall into,

of resorting to a too free use of the lancet. At first, when the reaction of the heart has taken place, it may be right that the patient should lose a considerable quantity of blood, so as completely to subdue the force of the circulation. Afterwards, for the most part, it is only an occasional blood-letting that is required, and that to a moderate extent. It has appeared to me that this mode of proceeding has usually done more, both towards relieving the present symptoms, and preventing subsequent inflammation, than a more active system of depletion: and where very large quantities of blood have been already taken away, if inflammation should show itself, our resources are comparatively limited, and we are not able to meet it with that energy and vigour which the circumstances of the case require.

Where bleeding has been carried to a great extent, symptoms frequently occur which in reality arise from the loss of blood, but which a superficial observer will be led to attribute to the injury itself, and concerning which indeed it is sometimes difficult, even for the most experienced surgeon, to pronounce in the first instance to which of these two causes they are to be referred. Repeated copious blood-letting is of itself adequate to produce a hardness of the pulse, which we shall in vain endeavour to subdue by persevering in the same system of treatment. In many individuals it will produce head-ache and confusion of mind, not very different from what the injury itself had previously occasioned. These things may be observed especially in young females who are disposed to hysteria; and whom I have often known to suffer from a continued aggravation of such symptoms as I have described,

SECTION VIII.

Treatment to be employed in cases of Compression of the Brain not complicated with Wounds of the Brain or its membranes.

When we consider the variety of circumstances under which compression of the brain may follow an injury of the head, and the different effects which it produces in different instances, we cannot suppose that the same mode of treatment will be found applicable to all cases, or that any such simple rules can be laid down for the conduct of the surgeon as those which we have to guide us in cases of concussion.

There is one most important complication which aggravates very much the ultimate danger, not only of these, but of all other cases of injury of the head; namely, the existence of a wound or laceration of the dura mater. This circumstance also tends to modify, if not to alter, the surgical treatment which is to be adopted. At present, I suppose that such a complication does not exist; that the brain suffers from pressure, but that the dura mater is entire, and that there is no exposure of the important parts which are contained within it.

Where the symptoms of compression are such that the patient's life is manifestly in danger, there can be no question as to the propriety of removing the cause on which they depend, where that can be accomplished by means of a surgical operation.

In cases in which there is a fracture and depression of bone, it is generally in our power to remove or elevate the depression. If there be a wound of the scalp, we may at once resort to the application of the trephine; or in some cases where the cranium is not only fractured, but splintered, we may do what is required by means of the forceps and elevator, without the aid of the saw. Where, however, the scalp remains entire, it will of course in the first instance be necessary to divide it, so that the bone may be completely exposed, and that the surgeon may be enabled to trace the extent of the mischief which has been inflicted on it.

An operation is also to be resorted to in those cases in which

there are symptoms of pressure depending on hæmorrhage between the dura mater and the bone. But here another question arises: what is the evidence which is to enable us to detect a mass of extravasated blood in this situation, and how are we to determine what is the exact part of the cranium which should be perforated by the trephine? I must here refer to an observation which has been already made. Blood is seldom poured out in any considerable quantity between the dura mater and the bone, except in consequence of a laceration of the middle meningeal artery, or one of its principal branches; and it is very rare for this accident to occur except as a consequence of fracture. If, therefore, we find the patient lying in a state of stupor, and on examining the head we discover a fracture, with or without depression, extending in the direction of the middle meningeal artery, although the existence of an extravasation on the surface of the dura mater is not thereby reduced to an absolute certainty, it is rendered highly probable, and the surgeon under these circumstances would neglect his duty if he omitted to apply the trephine. If it happens that no extravasation is discovered, the operation does not leave the patient in a worse condition than he was in before; but if there be an extravasation, although it does not place him in a state of absolute security, it relieves the present symptoms, and gives him a chance of recovery which he would not have had otherwise.

Where no fracture is discoverable, yet if there is other evidence of the injury having fallen on that part of the cranium in which the middle meningeal artery is situated, the use of the trephine

sufficiently justify such an experiment in desperate cases, or even in those in which there is much danger. Our judgment may be assisted on those occasions by attending to the rule laid down by Mr. Abernethy: 'If there be so much blood on the dura mater as materially to derange the functions of the brain, the bone to a certain extent will no longer receive blood from within; and by the operation performed for its exposure, the pericranium must have been separated from its outside. I believe that a bone so circumstanced will not be found to bleed, and I am certain that it cannot bleed with the same freedom and celerity as it does when the dura mater remains connected with it.' *

In applying the trephine on account of a fracture with depression, the removal of a small portion of bone is generally sufficient; and there is, indeed, no sufficient reason for removing any considerable portion of the cranium. But in resorting to the application of the trephine on account of an extravasation of blood on the surface of the dura mater, our practice should be different. The bone should be removed extensively, so as to expose at any rate a large portion of the surface of the dura mater, in which the extravasation has taken place. The necessity of attending to this rule was impressed on my mind by a case which came under my care in the hospital, in the year 1814. A man was admitted with a fracture of the parietal bone, and a large extravasation of blood between the cranium and the dura mater. I removed two triangular pieces of bone with a straight saw, and a large quantity of blood, partly fluid, partly coagulated, escaped through the opening that was made. The symptoms under which the patient laboured were immediately relieved, and for several days he appeared to be going on favourably. But suppuration ultimately took place on the surface of the dura mater, wherever the extravasation had separated it from the bone. The opening made by the saw being in great measure occupied by granulations from the dura mater, afforded no opportunity for the free escape of the pus which was formed in the neighbourhood, in consequence of which the abscess

* Abernethy on Injuries of the Head. Edit. 1797, pp. 33, 34.

burrowed between the dura mater and the bone, separating them from each other, much farther than they had been separated originally. As soon as I had discovered what was taking place, I removed another portion of bone with the trephine; but the mischief had now become so extensive, that the operation gave scarcely temporary relief, and the patient died. Reflecting on the case afterwards, I could not but acknowledge that if I had removed a larger portion of the bone in the first instance, so as to expose the extravasated blood more completely, the pus which was afterwards secreted could have been freely discharged, and the life of the patient would in all probability have been preserved.

But the most common cause of pressure on the brain is an extravasation of blood within the cavity of the dura mater. Here if there be any large collection of blood in one mass, it is generally in the basis of the cranium; sometimes in the substance of the brain, at other times in the cells between the tunica arachnoides and pia mater. In either of these cases it is beyond the reach of an operation. There may, indeed, be a large extravasation of blood on the superior surface of the cerebrum immediately beneath the dura mater; but if such an extravasation does exist, in what manner are we to become informed of its existence? We may regard it as a general rule, that an operation is not applicable to cases of compression of the brain from internal extravasation. But there are few general rules in surgery to which some exceptions may not be made. Let us suppose a case in which a considerable portion of bone has been already removed; in which the dura mater is seen exposed, of a blue colour, lifted up by a collection

may be, which the division of the dura mater affords him. The combination of circumstances which would lead to such an operation must be very rare, but it may occur nevertheless, and the surgeon should be prepared to meet it. The late Mr. Chevalier was called to a child a year and a half old, who had received a severe blow on the head. The child lay in a state of insensibility, and was affected with convulsions. There was no wound of the scalp; but on an attentive examination of the head, the fontanel appeared to be somewhat elevated. Mr. Chevalier was led, therefore, to make a crucial incision of the scalp, by dissecting up the corners of which he exposed the fontanel. He then made an angular incison of the right side of the fontanel, and raised the membrane forming it so as to expose the surface of the dura mater, beneath which the purple colour of extravasated blood was plainly to be seen. A puncture being made carefully with a lancet, the blood issued at first with considerable force, spouting to the distance of a foot. Three or four ounces of blood escaped; the symptoms were immediately relieved, and the child recovered without any further unfavourable symptoms.*

The following case, which is still more remarkable, was communicated to me by Mr. Ogle of Great Russell Street, in whose practice it occurred some years ago.

A woman, who kept a cellar in Monmouth Street for the sale of second-hand linen, &c., fell from the street, head foremost, to the bottom of the cellar. When taken up, she was in a state of total insensibility. Mr. Ogle being immediately sent for, found her lying as if in a fit of apoplexy. He ordered her head to be shaved, and, on examining it afterwards, discovered no wound of the scalp, but observed that she flinched very much when pressure was made on one spot near the anterior and superior angle of one of the parietal bones. Having made an incision of the scalp at this part, he could perceive no appearance of fracture. Nevertheless, as the woman was manifestly in imminent danger, he thought it expedient to remove a portion of the bone with the trephine. Immediately

* Medical and Physical Journal, vol. viii. p. 505.

on the bone being removed, the dura mater, of a dark colour, rose into the opening nearly as high as the external surface of the cranium. Convinced from its appearance, and from the feeling of tension communicated to the fingers, that a fluid was interposed between it and the brain, and that that fluid was blood, Mr. Ogle ventured to puncture the dura mater with the point of a lancet. The puncture was instantly followed by a stream or jet of blood, which spirted out to the height of some feet. Immediately on the blood being discharged, the woman, who till that moment had continued totally insensible, opened her eyes. After looking about her apparently amazed, she exclaimed, 'What is the matter? What are you doing with me?' and was able to give a clear account of the manner in which the accident had occurred. From this time she recovered without any untoward symptoms. It was impossible to ascertain the precise quantity of blood which escaped through the opening of the dura mater, but Mr. Ogle supposes it to have been about three-quarters of an ounce. But cases such as these are to be regarded as out of the common course of events. The ordinary cases of extravasation within the dura mater from injury, are to be treated as we treat cases of apoplexy, or of paralytic seizure, in consequence of a bloodvessel within the head being ruptured from disease: on the same principle as that on which we treat other cases of internal hæmorrhage. Take blood from the arm so as to reduce the force of the heart's action. Repeat this, or take blood by cupping, as soon as the pulse has recovered from the effect of the former blood-letting; administer active saline purgatives; let the head be shaved, and bathed with a cold lotion, being kept at the same time in an elevated position: and although such a plan of treatment will not effect the cure of a patient who lies with stertorous breathing in a state of perfect stupor, many will recover under it in whom the symptoms of pressure have been very urgent. In some instances a slight improvement is perceptible from day to day, until at the end of two or three weeks the patient seems to be restored to his natural condition. In other instances his recovery is less complete, and a

partial loss of nervous power may remain for many months; or such a memorial of the accident as, a dilated pupil, a benumbed hand, or a paralytic limb, may exist for a much longer period, for years, or even during the remainder of the patient's life

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The foregoing observations are intended to relate to those cases in which pressure operates on the brain in such a manner as considerably to impair its functions. There are many other cases in which there is reason to believe that there is extravasation of blood within the cranium, although not in sufficient quantity to produce any formidable symptoms. I have already observed that it is sometimes difficult to distinguish such cases from those of concussion of the brain; and it is therefore fortunate that, even where the distinction is plain, it leads to no difference of treatment.

It is also not uncommon for a fracture of the cranium to exist, with even a considerable depression of bone, and for the patient to suffer from it only in a very small degree, or to have no symptoms at all. Mr. Abernethy has published an account of several cases of this description, in which there were not only no symptoms at the time, but none at any subsequent period, although no attempt was ever made to restore the depressed bone to its natural situation, and I might add to the catalogue many similar cases which have fallen under my own observation; but the fact is now well known to every practical surgeon; and in doing so, I should unnecessarily occupy the time and attention of the Society. Here the condition of the patient immediately after the accident does not indicate the necessity of an immediate operation; and a very interesting and important question arises as to the course which the surgeon should pursue, and whether he should, or should not, under these circumstances, resort to an operation for the purpose of elevating or removing the depression?

The removal of a part of the cranium is not to be viewed as a trifling matter, or as an operation which we are warranted in performing without a very sufficient reason. 1st. The process, by

which the aperture in the cranium is filled up with new bone requires many years for its completion, even where the aperture is small; and where it is large, that process is never completed at all. The deficiency of the cranium must render the patient much more liable to suffer from accidental injury than he would have been if the cranium had been perfect. The cicatrix must be more easily penetrated by a cutting instrument, and more likely to give way under the force of a severe contusion than the bone itself; and in the second volume of the 'Edinburgh Medical Essays,' a case is recorded in which, during a violent fit of the hooping cough, such a cicatrix was lacerated, the dura mater torn, and the brain made to protrude through the wound, the patient dying with paralysis of the limbs five days afterwards. 2nd. Without referring to those remote consequences, or to cases in which it has been carelessly or improperly performed, the operation of the trephine is not to be regarded as one altogether free from danger. I saw a case in which a surgeon was induced to apply the trephine, although, as the event proved, there was no sufficient reason for so doing. The dura mater, at the time of the operation, was found adhering to the bone, and in a healthy state. Nevertheless, when the patient died some time afterwards, and the body was examined, the external layer of the circular portion of the dura mater which had been exposed in consequence of the trephine being employed, was found in a state of slough, and it was a matter of doubt whether the sloughing did or did not extend through the whole thickness of the membrane. In another case which occurred in St. George's Hospital, Mr. Gunning was in-

dura mater which had been exposed in the operation was in a state of slough, the slough extending through its whole substance. Everywhere else the dura mater was in a natural state. It is reasonable to conclude that the sloughing of the dura mater in these cases was the consequence of it being deprived of its natural protection, and of the supply of blood which it receives through the vessels of the bone.

Now if the patient, whose case was mentioned last, had survived some time longer, what would have happened? The slough of the dura mater would have separated, and the brain losing the support which it derives from this firm membrane, and having its vessels loaded with blood, would, in all probability, have become protruded in the form of what is denominated a hernia cerebri. Such a protrusion would not, indeed, aggravate the danger of the case, where suppuration had already taken place within, but it might make the difference of life or death to the patient where the inflammation had not begun to terminate in this manner.

That the removal of a portion of the cranium may in itself be sufficient to make the patient liable to this formidable and dangerous disease of hernia cerebri, would appear sufficiently probable without any particular experience on the subject; and for evidence that this is actually the case, we need not go further than the 'Transactions' of this Society. I allude to the very important paper by Mr. Stanley, published in the eighth volume of this work. In every one of four cases, which are here recorded, in which a portion of the bone of the cranium had been removed by the trephine or straight saw, the dura mater was found not to have suffered from the injury, yet a hernia cerebri presented itself some days afterwards. In one case it is distinctly stated that the dura mater was in a state of slough at the time of the protrusion beginning to take place; but it does not appear whether in the other cases it gave way in consequence of sloughing or ulceration.

Taking all these facts into consideration, we cannot refuse our assent to the proposition that the perforation of the skull, and the

removal of a part of it, is attended with a certain degree of danger, and the evidence hitherto adduced is in favour of the opinion, that 'it is most prudent to abstain from the use of the trephine, where there is a fracture with depression of the cranium producing at the time no unfavourable symptoms.'

But much may be said on the other side of the question; and at any rate there are other points to be considered before we can arrive at a positive conclusion on the subject.

1st. Although in some cases sloughing of the dura mater and hernia cerebri may follow the operation of the trephine, there are many other cases in which this never happens, the dura mater granulating, and the wound cicatrising favourably.

2nd. Notwithstanding that a depression of the cranium is allowed to remain in many instances without it being productive of any bad consequences, there are numerous examples of such an injury being followed by extensive mischief. Suppuration takes place on the surface of the dura mater, an abscess is formed between that membrane and the bone, and ultimately (as I shall endeavour to explain on a future occasion), if the abscess has no opportunity of discharging itself externally, the inflammation extends to the parts below, and there is suppuration of the tunica arachnoides and pia mater, leading inevitably to the patient's destruction.

3rd. Where a depression of the cranium is allowed to remain, it sometimes happens that symptoms arise after a considerable lapse of time, which may even endanger the life of the patient, and which are to be attributed to the continuance of the depression,

inch and a half in its shortest diameter, and in one part nearly three quarters of an inch below the natural level. At the end of six weeks the early symptoms had subsided, and the patient was considered well. As soon, however, as he returned to his usual occupations, various nervous symptoms began to show themselves which manifestly depended on the continued pressure on the brain. These symptoms, instead of diminishing, increased in severity, and on some occasions were such as to occasion serious alarm; in consequence of which, at the expiration of three years from the time of the accident, Sir Everard was induced to remove nearly the whole of the depressed bone with the trephine. The wound cicatrised readily. The symptoms which existed before the operation were immediately relieved, and, as I have been informed, never recurred.

In this case the fracture and depression were very extensive, and probably these ultimate ill consequences, or secondary effects of the injury, may be avoided if we consider it as a general rule, that an extensive or deep depression should lead to the application of the trephine, although the same necessity does not exist where the depression is small.

This rule, however, affords us no assistance with respect to the greater danger arising from the chance of suppuration between the bone and the dura mater; this being as likely to occur where the depression is small as where it is large.

Sir Astley Cooper has stated in his 'Lectures on Surgery'* that there is a great difference, as to the danger of inflammation and suppuration of the membranes of the brain, between those cases in which the fracture and depression is complicated with a wound of the scalp, and those in which the soft parts are uninjured; such mischief being much more liable to occur in cases of the first kind than in those of the second: and on these grounds he recommends that, where this complication exists, we should not hesitate to apply the trephine; and on the other hand, that, where it does not exist,

* The Lectures of Sir Astley Cooper, Bart. by F. Tyrrell, &c., vol. i.

we should carefully abstain from adding to the injury, by dividing the scalp and exposing the fracture. But many persons undoubtedly have recovered in whom there was at the same time a wound of the scalp, and a fracture and depression of the cranium, although no operation was resorted to. The cases to which I have before alluded as published by Mr. Abernethy, are all examples of this fact; and I recollect other similar cases which have fallen under my own observation. I have conversed also with several other surgeons whose experience on the subject has corresponded with my own, and all these circumstances led me in the first instance to doubt the accuracy of Sir Astley Cooper's conclusion.*

The question, however, is not to be decided merely on these premises. Many persons may do well without an operation who suffer from what Sir Astley Cooper denominates a compound fracture of the cranium, and yet it may remain to be determined

* The following statement was furnished to me by my friend and colleague, Mr. Rose, from notes which he made while surgeon to the Coldstream Regiment of Guards during the Peninsular war:—

'In the Battle of Talavera de la Reyna, which was fought on the 27th and 28th of July 1809, the brigade of guards lost about 600 men in killed and wounded. Amongst the latter were a considerable number of cases of wounds in the head. There were a great many cases of fracture of the bones of the cranium with and without depression, and from the cause which produced them, these were, of course, in every instance complicated with wounds of the scalp.

'On the 3rd of August, in consequence of some military movements, the town of Talavera, in which the hospital had been formed, became exposed, and an order was given for all the wounded who could march, to leave it. This was so speedily obeyed, that no time was afforded to make any selection. The worst cases necessarily remained, but among those who undertook the march there were twelve or fourteen with wounds in the head, accompanied with in-

what is the probability of suppuration taking place in these cases, as compared with those in which the scalp escapes uninjured?

For many years I have preserved notes of a large proportion of the cases of injury of the head, which it has fallen to my lot to witness. Among them, of course, are many in which there was fracture, with or without depression, followed by suppuration between the dura mater and the bone. On referring to these for further evidence on this interesting subject, I find that the cases in which suppuration takes place where the scalp is entire have been comparatively rare; bearing a very small proportion indeed to those cases in which suppuration has followed a fracture complicated with a wound of the scalp. Such is the result of my own experience, during a considerable period of time, and which I am enabled to give not merely from a general recollection of what I have seen, but on the authority of written notes, made at the bedside of the patients, and for the most part before the question which they illustrate had ever presented itself to my mind.

Taking all these facts into consideration, and endeavouring to give its proper value to what may be urged on either side of the question, I cannot but acknowledge, whatever may have been my first impression on the subject, that it appears to me at this moment that the views of Sir Astley Cooper are well founded; and that, in those cases in which a depression of bone exists without any symptoms, or with only trifling symptoms arising from it, the surgeon can follow no better general rule than this: if the depression be exposed in consequence of a wound of the scalp, let him apply the trephine, and elevate the depression: but if there is a depression without a wound of the scalp in consequence of the accident, let him not make such a wound by an operation. An exception may perhaps be properly made with respect to very extensive depressions of the cranium, which it may be prudent to expose and elevate at all events, not because there is a greater danger of suppuration from these than from smaller injuries, but on account of the ultimate ill consequences which the patient may

experience if the brain be left permanently subjected to a very considerable pressure.

I have only two further observations to offer before I leave this part of the inquiry.

The first is, that even where the fracture and depression of bone is complicated with a wound of the scalp, there is not, in all cases, the same absolute necessity for the application of the trephine. The bone may be depressed in such a manner as to allow the escape of the pus which is formed on the surface of the dura mater, although the depression is not elevated; or its position may be such as that the abscess can find no external opening. The danger in the first case must be infinitely greater than that in the second. A boy was admitted into St. George's Hospital who had received a severe blow on the head. The scalp was wounded, and there was a fracture and depression of bone; but as the depressed bone was not of a large size, as it was not much below its natural level, and as it produced no symptoms of importance, I did not apply the trephine. Eight or nine days after the accident, the boy complaining of pain in the head, the pulse having become frequent, and there being an expression of anxiety in the countenance, I divided the scalp beyond the wound which already existed, so as to expose the fracture more completely. I now discovered that suppuration had taken place beneath the bone, but the edge of the depressed bone was so much below the level of the bone in the neighbourhood that there was a very free opening for the escape of the pus, which was distinctly seen at the bottom of the wound rising and falling as the pulsations of the

the accident. I have seen two cases in which the scalp remained entire, but in which the bone was fractured and depressed, and the dura mater lacerated, and the brain itself wounded by the edges of the fracture. Such a complication may be sufficiently dangerous under any treatment; but if we are to judge from the analogy of what occurs, not only in cases of simple and compound fractures of the extremities, but of other mechanical injuries, we must suppose that the danger would be much aggravated by the addition of a wound of the scalp. Suppuration of the brain and its membranes, to a greater or less extent, must necessarily ensue if they are exposed under the circumstances which have been described, and it seems not improbable that such mischief may be avoided if the scalp be allowed to remain entire for their covering and protection. Of course this remark applies only to the conduct of the surgeon in the first instance. The treatment to be pursued, if, at a later period, suppuration should be actually established, is not under our present consideration.

Section IX.

Treatment of Contusions and Wounds of the Scalp.

As the treatment to be employed in cases of concussion and compression of the brain involves questions of peculiar interest, which demand the earliest attention of the surgeon in the greater number of instances of injury of the head, I have thought these subjects not undeserving of our first consideration. It remains for us to determine the course which is to be pursued in other cases, of which the principal are: those of wounds and contusions of the scalp; of fracture, unattended with depression, and where there is no reason to believe that there is extravasation of blood beneath the bone; and those of wounds of the brain or its membranes.

Extravasation of blood in the cellular texture of the scalp seems to require for the most part no particular attention. Here, as elsewhere, the swelling made by the extravasation gradually

becomes less prominent, and more diffused, and no great length of time elapses before it disappears altogether. I was consulted concerning the case of a young gentleman, in whom there was an effusion of blood under the scalp, extending from the superciliary ridges to the nape of the neck, and from ear to ear. When I saw the patient, the blood appeared to be still in a fluid state, or at any rate not completely coagulated; and it had been poured out in such quantity that the cranium itself was not in any part perceptible to the touch: nevertheless, in the course of a few weeks, with no other application than that of a cold lotion, the whole tumour disappeared.

It is evident that, whatever was the vessel ruptured in this instance, it must have continued to bleed for a considerable time before so large an extravasation could have taken place. In another case in which a vessel under the scalp was bleeding in the same gradual manner, and threatening to produce similar results, I was enabled to ascertain the point at which the extravasation began, and by making pressure in this situation to stop its further progress. The patient was a child who had received a blow on one temple, I believe, from the corner of a table. Soon afterwards the nurse observed a swelling in the part which had been struck, which however attracted but little attention at the time. On the following day the swelling had increased, and the parents brought the child to London, a journey of several miles. During the journey, the swelling became still larger, and when I was consulted soon after their arrival in London, it occupied the whole temple. I directed the child to be kept quiet, and the head to be bathed

temporal artery; and from this time there was no further increase of the swelling.

Punctured and incised wounds of the scalp require (in the first instance at least) no peculiar treatment. Nothing that has occurred in my own experience would lead me to believe that there is any reason why adhesive plaster should not be employed to approximate the edges of a wound of the scalp, as well as those of a wound elsewhere. Erysipelas not uncommonly follows a wound of the scalp, but it seems to me to occur equally, whether the wound is dressed with adhesive plaster or in any other manner.

When a portion of the scalp is separated in the manner of a flap, so as to expose the tendon of the occipito-frontalis muscle, or the pericranium, if it be carefully and neatly replaced, it will often become united by the first intention to the parts from which it has been separated. In many cases, however, there will be no adhesion, as where some time has elapsed before the wound has been dressed; or there has been considerable contusion; or the surface of the wound has been smeared with dirt, or other extraneous substance. In other cases there will be partial adhesions, some parts of the wound becoming united while there is suppuration elsewhere; and (as I shall have occasion to observe hereafter) this state of things requires much attention on the part of the surgeon, lest the formation of abscesses in certain places should do injury to the pericranium and bone, and destroy the adhesions in the neighbourhood.

In those cases, also, in which the pericranium is separated from the bone, it is for the most part right to replace the scalp, with the torn surfaces in contact, and to allow them to have the chance of becoming united, whatever that chance may be. Such union will not unfrequently take place even in the adult, where the bone is not exposed to a great extent, and the parts are nicely adjusted to each other; but there is much more reason to expect it in the young person, on account of the greater vascularity of the harder textures before the period of growth is concluded.

Section X.

Treatment of Fractures of the Cranium unattended with Depression.

It seems to be the general opinion of modern surgeons that a fracture of the cranium, where there is no depression, and no evidence of any considerable extravasation between the dura mater and the bone, requires nothing beyond the strict antiphlogistic treatment, which ought to be resorted to in all cases of injury of the head. The fractured surfaces being here in contact, are under circumstances the most favourable to the process of union, and the removal of a portion of the bone with the trephine must be regarded as a considerable, and as far as the fracture itself is concerned, a wanton addition to the mischief already inflicted, which, instead of expediting, cannot fail materially to retard the patient's ultimate recovery.

The application of the trephine, under these circumstances, has nevertheless been recommended by Mr. Pott; and I should be guilty of a serious omission if I were to pass over in silence a question of such importance, and relating to a point of practice which has received the sanction of such high surgical authority.

In the perusal of Mr. Pott's treatise on 'Injuries of the Head,' we cannot but feel some degree of astonishment that that eminent surgeon should have resorted to an operation with so little hesitation in a number of cases, in which the existing symptoms were of trifling importance, and in which there was no evidence of immediate danger. It does not appear, however, that Mr. Pott, on these occasions, acted merely under the influence of his early prejudices, or of the example of those who had gone before him; and although not formally stated in his writings, the following argument may be deduced from them in favour of the practice which he recommended and adopted.

1st. The blow which occasions a fracture of the cranium, is likely to do such further injury to the vessels of the dura mater as may lead to inflammation and suppuration of the external

surface of that membrane, and the formation of an abscess between it and the bone.

2nd. If such an abscess be formed without a free external opening, the case must terminate fatally.

3rd. If immediately after the accident a portion of bone be removed by the trephine, the pus formed afterwards on the surface of the dura mater is enabled to escape, and the danger arising from its confinement beneath the bone is avoided.

But it may be urged in opposition to this doctrine, 1st. That Mr. Pott seems, on the one hand, to have greatly over-estimated the danger of suppuration between the bone and the dura mater in cases of simple fissure of the cranium; and that such mischief will be avoided in the very great majority of cases, provided that, from the moment of the accident, the patient be kept in a state of perfect repose, on a spare diet, with the head cool, blood being taken occasionally from the arm, and these remedies being combined with the use of saline purgatives.*

2nd. That he seems on the other hand to have under-estimated the evils which may arise from the removal of a portion of the cranium, to which, in fact, no allusion is made in any part of his writings. On this subject it is needless to repeat the observations which I have made in a former part of this paper.

3rd. That even if suppuration should take place between the bone and the dura mater, a watchful surgeon may generally detect the circumstance before pus has been formed to any great extent, and that the patient has still the chance of being preserved by the timely application of the trephine.

We can scarcely hesitate to admit that the reasons for abstaining

* Whoever reads Mr. Pott's observations on this subject, and compares them with what is now seen in hospital practice, will, if I am not mistaken, find good reason to believe that suppuration between the dura mater and the bone in consequence of a fracture, is less common at the present period than it was when Mr. Pott wrote; a difference which may fairly be attributed to the more strict antiphlogistic treatment which modern surgeons do not fail to adopt in all cases of injury of the head, whether the early symptoms be or be not of a dangerous description.

from the use of the trephine under the circumstances which have been described, are more conclusive than those which may be urged in favour of a more active treatment; it being at the same time borne in mind that cases of fracture of the cranium, even without depression, are always to be regarded with a jealous eye, especially where the scalp is wounded and the pericranium separated from the bone, it being in these cases especially that danger exists of the formation of matter between the dura mater and the bone.

Section XI.

Treatment of Wounds of the Brain and its Membranes.

Although the condition of the patient who labours under a wound of the brain, or dura mater, is essentially different from that of one in whom no such wound exists, the general treatment required in these two orders of cases is nearly similar; and bleeding, purgatives, low diet, and a state of perfect repose, form an important part of the remedies to be employed in cases of wounds, as well as in those of concussion and compression of the brain.

The object of the local treatment, where there is a wound of the brain or its membranes, is not so much to relieve the existing symptoms as to prevent future ill-consequences, the principal of which are (as I shall show hereafter), 1st, inflammation extending from the wound over the membranes of the brain, and producing an effusion of serum and pus; 2nd, inflammation, suppuration,

removal cannot be improper, and may probably be useful. Many persons, however, have recovered in whom an opposite practice has been pursued. I saw a gentleman in whom detached fragments of bone remained imbedded in the brain, many months after he had received a wound in the head from a pistol-bullet, and who suffered scarcely at all from the injury. Do not such cases justify us in leaving splinters of bone untouched, where there is any kind of obstacle to their easy extraction? Are they not even sufficient to show that any other mode of proceeding would be improper, and that it is better to leave the patient to take his chance with the splinters lodged in the brain, than to commit the smallest additional violence in an endeavour to remove them?

A similar observation may be made respecting depression of bone when complicated with wound of the brain. If the edge of the depressed bone be imbedded in the substance of the brain, it may be proper to restore it to its natural level, provided that this can be readily accomplished with the forceps or elevator. But individuals have recovered, in whom a depression of bone has been allowed under these circumstances to remain without being elevated; and it cannot be advisable to risk this chance of recovery, whatever it may be, if the elevation requires the application of such a degree of force as is likely to cause the most trifling additional injury to the wounded brain. I have myself been led to doubt the expediency of applying the trephine in those cases in which there were no circumstances making the operation absolutely necessary. The motion of the saw must occasion more or less jar to the tender substance of the brain; and this, which may be of little consequence where the brain and its membranes are entire, may make a serious difference as to the degree of danger, where these parts are already lacerated and contused. There is, moreover, the same objection here as in other instances, to the removal of any considerable portion of the parietes of the cranium, namely, the liability which it occasions to the formation of a hernia cerebri.

The lodgment of a musket-ball, or other foreign body in the

substance of the brain, is undoubtedly a very serious occurrence, and one attended with the greatest danger to the patient. If, the foreign body be of such figure and dimensions, and so situated, that while one extremity of it is inclosed within the cavity of the cranium, the other extremity projects externally, it may of course be extracted, and probably, ought to be extracted at all risks. But with respect to a musket-ball or pistol-bullet lodged in the brain, it may be observed, first, that it rarely happens that it can be discovered and extracted even by the lightest and most practised hand, without such a degree of violence as must be in itself sufficient to produce a train of evils, which in all probability would terminate in death: and, secondly, that there are numerous instances of persons who have recovered, although the ball was allowed to remain in the brain; some of whom have suffered no more than they would have suffered from its being lodged in a less important part of the body. Taking all these things into consideration, ought we not to regard it as the general rule, that the extraction of a ball should not be attempted; an exception to the rule being made only in those cases, in which, from its more superficial situation and other circumstances, the extraction can be easily accomplished without the employment of force, and without adding in any degree to the mischief already done?

On the whole (according to the view which I am led to take of the subject), there seems to be in the very great majority of cases of wounded brain, more wisdom in resorting to negative, than to active local treatment. At any rate, as the restorative powers of the animal system are on all occasions the principal agents in the

disease, and by arguments derived from analogy. In fact, the cases of wounds of the brain, which occur in the routine of a civil hospital, are so few in number compared with those of other injuries of the head; they exhibit such numerous and various complications; and the proportion of recoveries from such wounds, whatever system is pursued, is so small (especially among adult patients), that it would be bold of any surgeon, engaged in the ordinary duties of his profession, to declare that he had been able to make a comparison of the different modes of treatment on such an extended scale as would enable him to lay down rules of conduct founded wholly on his own practice and experience. The opportunities of military and naval surgeons must be, at certain periods, more considerable; but the circumstances under which they occur are very unfavourable to that minute observation and accurate judgment, which would be necessary to enable them to derive from their opportunities all the advantages which they might otherwise afford. Where the experience of individuals fails, we are called on to look for other sources of information. I have referred to all the cases of wounded brain recorded in the works quoted below,* and the general results which they exhibit will be found not uninteresting, if viewed in their relation to this point of surgical practice. These cases are thirty-eight in number, of which twenty-six terminated favourably, and twelve unfavourably. This, of course, affords no information as to the actual rate of mortality in cases of this description, the fatal cases being for the most part regarded as too much a matter of course to be worthy of publication, while a very different opinion is entertained respecting the cases of recovery. But the following facts afford some useful information as to the circumstances under which recovery takes place.

* Mémoires de l'Académie Royale de Chirurgie.—Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge.—Duncan's Medical Commentaries.—Duncan's Annals of Medicine.—Edinburgh Medical Journal.—Medico-Chirurgical Transactions, vol. i. to vol. xii. inclusive.—Le Dran's Observations in Surgery.—Hennen's Military Surgery.—Collection d'Observations Cliniques par M. A. Petit.

In nine cases of wounded brain in which the bone was fractured, but not depressed, no operation whatever was performed. In two of them the patients died; in the remaining seven they recovered.

In fifteen cases no operation was performed, beyond that of removing some splinters of bone with the forceps. In five of these cases the patients died, while in ten the patients recovered.

In four cases the wound of the brain was complicated not only with fracture, but with depression of bone. In one of them in which the depressed bone was allowed to remain without being elevated, the patient recovered. In the three remaining cases the depression was elevated with the assistance of the trephine; and one of these patients recovered, and two of them died.

In ten cases a musket-ball was lodged in the brain. In two of them the ball was extracted, and one patient recovered, while the other died. In the remaining eight cases the ball was allowed to remain, no attempt being made for its extraction, and two of these patients died, while six of them recovered. Of these last, however, one died several weeks afterwards of inflammation of the brain induced by intemperance in drinking, and another, after having been sufficiently well to resume his duties as a soldier, died in the course of the following year, of what was regarded as a *coup de soleil.*

It appears then that in fourteen out of twenty-six patients who recovered, no operation whatever was resorted to, and that in ten of the remaining twelve, there was no operation beyond that of removing splinters of bone with the forceps. Of those in whom a ball was extracted from the brain one died and one recovered; and

There is one circumstance connected with this subject, which is too important to be passed over in silence, and which may very properly be mentioned in this place, as it must very materially influence us in the opinion which we give, at the time of the accident, as to the probability of the patient's recovery. I have not been able to discover, among all the works which I have consulted, a single instance of recovery from a wound of the posterior lobes of the cerebrum, of the cerebellum, or medulla oblongata; and in the great majority of cases in which a cure has taken place the injury has been confined to the frontal bone, and that part of the brain which is covered and defended by it.

Section XII.

On the Treatment of some other Cases which are not included under the foregoing heads.

In those cases in which a particular class of sensations is destroyed or impaired—as where deafness, or a loss of smell or taste follows an injury of the head—I am not aware that advantage is to be expected from any particular mode of treatment, or that the use of any remedies is indicated beyond those which are resorted to in ordinary cases of concussion of the brain. The patient generally recovers the sensations of which the accident had deprived him in the course of one or two years; but his cure is to be attributed not so much to the skill of the surgeon, as to the restorative powers of his own system. All cases, however, do not prove equally fortunate in the result. I saw a gentleman in consultation with Dr. Francis

cerebrum, and extracted at the end of twenty-eight days, the patient afterwards recovering. Here the foreign body remained in the substance of the brain until inflammation had been going on for an entire month, so that the brain and its membranes must have become extensively agglutinated and consolidated around it. The question as to the extraction of a foreign body after such a lapse of time, and under such circumstances, belongs more properly to another part of these inquiries; my observation at present being intended to be confined (as nearly as that can be done) to the treatment to be employed immediately or soon after the occurrence of the injury.

Hawkins, who had lost his sense of smell in consequence of a blow on the head many years before, and in whom no improvement in this respect had ever taken place. He was not even sensible of the odour of valerian, although he could distinguish the medicine by the taste.

When a patient is affected with furious and raving delirium, blood should immediately be taken from the arm, and, if possible, in a full stream. I scarcely remember a single case, in which delirium of this kind, occurring soon after a blow on the head, did not yield to a copious blood-letting. The patient may very probably relapse into the same state, as soon as the first effects of the loss of blood have subsided, and it may be necessary to resort to the same means a second or third time, before the relief is permanent.

As there is reason to believe that convulsions and furious delirium occur under nearly parallel circumstances, we may expect that the treatment which is useful in cases of the former description will also be useful in those of the latter. When convulsions occur soon after the accident, blood-letting is undoubtedly indicated. It is not however always easy, when the patient's limbs are thus moved and agitated, to succeed at once in the operation; and in many cases, the convulsions having been once established, they will continue for a certain period, notwithstanding that a considerable quantity of blood has been taken away, subsiding at last spontaneously. In a few instances (as has been already explained) convulsions occur at the expiration of some days from the time of the injury. At this later period they may exist in combination with inflammatory symptoms, which may require the further use of the

ON
INJURIES OF THE SPINAL CHORD.

FROM VOLUME XX. OF THE MEDICO-CHIRURGICAL TRANSACTIONS, 1836.

As the spinal chord is an appendage of the brain; as the functions of the one are intimately connected with those of the other; as they are constructed alike of medullary fibres and cineritious substance, enclosed by similar membranes, and protected, each of them, by a strong bony case; it seems reasonable to expect that they should suffer, nearly in the same manner, from the effects of mechanical injury. Pathological and surgical writers (with very few exceptions) seem to have taken nearly this view of the subject, and hence probably it is, that while their works contain abundant information respecting the consequences of wounds and contusions of the head, so little can be learned from them as to the not less important consequences of the same accidents, where they affect the column of the vertebræ.

It is with a view to contribute my share towards remedying this defect in surgical literature, that I venture to offer the following observations to the Royal Medical and Chirurgical Society. Those who have been much engaged in the practice of large civil and military hospitals will, I trust, discover in them no inaccurate representation of what they themselves have witnessed; while to the younger members of our profession, and to those whose opportunities are less extensive, it may be neither useless nor uninteresting to have placed before them a connected history of a class

of accidents, which they must occasionally meet with; which are always attended with danger, and which at the same time lead the mind of the scientific inquirer to a variety of curious physiological and pathological speculations.

It is my intention not to occupy the time of the Society by giving a detailed account of individual cases, but rather to explain the general results of my experience; it being understood, that except where I expressly refer to the observations of others, I make no statements for which I do not find an authority in the written notes of cases which I have been enabled to collect in the course of the last few years.

Wounds, which penetrate through the external parts into the spinal chord, are almost invariably fatal at a very early period: the examples of recovery from them which have been recorded by writers being very few in number, and leading to no important rules of surgical practice. On this part of the subject I have nothing new to offer from my own experience. Those who will take the trouble of referring to M. Ollivier's treatise on diseases of the spinal chord, will find in it a notice of some interesting experiments illustrating the effects of these injuries in animals, as well as the histories of some cases, chiefly collected from other authors, in which they occurred in the human subject.

In considering the other and more common varieties of injury of the spinal chord, I shall in the first instance, as the best foundation of our knowledge, endeavour to describe the effects of these accidents, as they are disclosed to us by dissection, where the patient has died at an early period after the infliction of the

diminishing the diameter of the spinal canal, and occasioning pressure on the spinal chord.

3rd. Fractures complicated with dislocation.

4th. Dislocations not complicated with fracture.

The existence of such dislocations has been doubted by some very distinguished surgeons, but Mr. Lawrence, in a paper on the subject published in the thirteenth volume of the Transactions of this Society, has not only recorded several cases in which they had taken place in the cervical vertebræ, but has also adduced satisfactory evidence of their existence even in the dorsal and lumbar portions of the spine. In a case which came under my own observation, the fourth and fifth cervical vertebræ had been completely separated from each other, so as to expose the theca vertebralis for the extent of half an inch. Similar cases of diastasis have been described by Sir Charles Bell and Mr. Lawrence.

Dislocations of the odontoid process of the second cervical vertebra in consequence of disease, are not very uncommon, so that probably there are few surgeons of much experience who have not had the opportunity of witnessing cases of this kind.*

5th. Extravasations of blood on the surface of the membranes of the spinal chord. Such extravasations, however, rarely take place to any considerable extent, and bear no comparison to those which occur within the cavity of the cranium in consequence of a rupture of the substance of the brain, or a laceration of the middle meningeal artery.

6th. A narrow clot of extravasated blood is sometimes discovered within the substance of the spinal chord. It is always of a very small size, but from its peculiar situation, may be productive of the most dangerous symptoms.

7th. Laceration of the spinal chord and its membranes. Of course it is more easy to conceive than to describe all the varieties of this kind of injury which are met with in practice. The spinal

* See Rust, in Arthrokakologia: Lawrence, op. cit.; and my own Treatise on the Diseases of Joints.

chord may be separated through its whole substance; or it may be torn in one part and not in another. M. Ollivier describes a case in which the attachments of the nerves on one side were destroyed, while those on the other side were entire.

8th. The minute organisation of the spinal chord may suffer from a blow inflicted on the spine, even where there is neither fracture nor dislocation, and where the investing membranes do not appear to participate in any way in the effects of the injury. In such cases, if there be an opportunity of examining the spinal chord at a very early period after the accident has occurred, the central part of it is found to be softer than natural, its fibrous appearance being lost in that of a semi-fluid substance. If the patient survives for a longer period, the alteration of structure is perceptible in the whole diameter of the chord, and occupies from one to two inches, or even more, of its length; and at a still later period it has often proceeded so far, as to terminate in its complete dissolution.

This disorganisation, softening, and final dissolution of the spinal chord is the most common consequence of injuries of the spine, and the dangerous symptoms which follow these accidents are, in the majority of cases, to be attributed to it. It bears no distant resemblance to the effects of a contusion of those soft parts which are more superficially situated, and it is easy to understand that it may be produced by a severe concussion operating on the delicate medullary fibres and cineritious substance of which the spinal chord is composed.

In a paper which I communicated to this Society in the year

the ultimate structure of the brain is on so minute a scale that our senses are incapable of detecting it, it is evident that there may be changes and alterations in it, which our senses are incapable of detecting also. The speedy subsiding of the symptoms in some cases of concussion does not contradict this opinion. A deep incised wound in other parts may, under certain circumstances, be completely and firmly united in the space of twenty-four hours, and it is easy to suppose that the effects of a much slighter injury may be repaired in a much shorter space of time. These remarks are not less applicable to cases of concussion of the spinal chord than they are to those of concussion of the brain. We cannot doubt that the nature of the injury is the same in both of them. It is true that much worse consequences usually arise from concussion of the spinal chord than from concussion of the brain; that is, if the patient recovers, his recovery is more tedious; that if he dies, greater changes in the condition of the injured part are detected on dissection. But these differences in the effects of the injury are easily explained. The brain and its membranes completely occupy the cavity of the cranium, while the spinal chord and its membranes occupy only a part of the vertebral canal; and this being the case, it requires no great knowledge of mechanics to enable us to understand why the same degree of violence applied to the head, and spine, should occasion different degrees of mischief to the organs which they contain.

The effect of a violent concussion is at once to impair, and even to destroy, the functions of the spinal chord, sometimes even causing the patient's death in the course of a few hours; and the question here presents itself, What is the nature of the injury thus inflicted on the spinal chord, so trifling in appearance, so great in reality, which is capable of producing such important and dangerous consequences? It would be an interesting experiment, but it is one which I have hitherto neglected to institute, where a patient has died at an early period after an accident of this kind, to prepare the spinal chord by maceration in alcohol, and to endeavour, by tracing its fibres, to ascertain in what respects they are altered

from their natural condition. The process of softening and dissolution of the chord which takes place afterwards has, I know, been regarded by some pathologists as the consequence of inflammation; but a consideration of the following circumstances leads me to doubt the accuracy of this conclusion: 1st. A minute examination of the injured part of the spinal chord will often enable us to detect the commencement of the softening process at a very early period, before sufficient time had elapsed for inflammation to become established, and before any symptoms of inflammation had shown themselves. 2nd. The softened part of the chord, in the first instance, exhibits no appearance of increased vascularity. 3rd. Even where the softening process is so far advanced as to occasion complete disorganisation of the spinal chord, the investing membranes, for the most part, exhibit their natural appearance, there being neither increased vascularity, nor the slightest effusion of lymph, or serum, or pus, on their surface. 4th. The symptoms which mark the progress of these changes are (as I shall show hereafter) merely a continuation of those which the concussion of the spinal chord has occasioned in the first instance, and which of course must have been wholly unconnected with inflammation.

It is true that the disorganisation of the spinal chord never proceeds to any considerable extent without an enlargement, the small vessels being perceptible, such as may be supposed to indicate the existence of inflammation; but this is no more than what happens in the progress of any other disease. As far as I know, there is no exception to this general rule. A scirrhous or fatty tumour is not the result of inflammation, but inflammation

it may be observed that there is a manifest resemblance between the softening of the spinal chord which follows mechanical injury, and that softening of the brain and spinal chord which takes place from internal causes, and which was first particularly described by M. Rostan under the name of Rammollissement du cerveau. M. Andral properly rejects the notion that this change is the mere result of inflammation, and every practical pathologist must have had ample opportunities of determining the justice of the argument which he uses, that 'We often meet with cases (of rammollissement) where there is no appearance of sanguineous congestion, nor of purulent effusion, nor of any morbid secretion; a simple diminution of consistence being all that is to be seen.'*

Although the softening of the spinal chord is not the consequence of inflammation, we must not overlook the circumstance, that inflammation of the investing membranes sometimes exists in combination with it, or that such inflammation may take place where the chord is little or not at all affected in this manner. Inflammation, however, is to be regarded as one of the secondary effects of the injury, and the consideration of it belongs more properly to another part of the present investigation.

Section II.

The peculiar symptoms, which arise as an immediate consequence of injury of the spine, may be referred, 1st, to concussion of the spinal chord; 2nd, to laceration or division of its substance; 3rd, to pressure made on it either by displacement of bone or extravasated blood. Afterwards, inflammation of the membrane of the chord may take place, and other organs may be secondarily affected, giving rise to another order of symptoms, which did not exist in the first instance.

* A Treatise on Pathological Anatomy by G. Andral, translated by Dr. Townsend and Dr. West, vol. ii. p. 748. 1831.

Taking a general view of the symptoms, we may observe that they vary; 1st, according to the part of the spinal chord on which the injury has been inflicted; 2nd, according to the kind and degree of injury which the chord has sustained; 3rd, accordingly, as from accidental circumstances, that is from circumstances of which we cannot take cognisance, the life of the patient is prolonged for a shorter or longer period, or ultimately preserved.

Such is the diversity of the symptoms which we meet with in practice, that it would be vain to attempt to give a single connected history of them, which would be applicable to all, or even the majority of the cases; and on the other hand, a needless repetition in many respects would be the result, if we were to endeavour to distribute the cases under different heads, accordingly as the symptoms arise from different degrees and kinds of injury, or from injuries occurring in different situations. The best consideration which I have been able to give the subject, leads me to believe that the following method of analysis will (on this occasion) be less liable to objection than any other. I propose, in the first instance, to give an account of the several symptoms, which are the consequence of injuries of the spinal chord, in succession, endeavouring to point out (as far as is in my power to do so) under what circumstances each of them presents itself; and afterwards to offer some general observations, with a view to connect the whole together, and complete the history, which might otherwise be deficient. I hope thus to be enabled to avoid the omission of any facts which are really important, without sacrificing that brevity and conciseness which it is so important to

extensively lacerated, or subjected to any considerable degree of pressure, the paralysis is immediate and complete. If the injury be partial, certain muscles may be paralysed, while others retain their power of voluntary motion.

Concussion of the spinal chord often produces complete paralysis also; but more frequently the paralysis arising from it is partial. One limb may be paralytic and another not so; or in the same limb certain muscles may be thus affected, while others are still obedient to the will. In some cases the patient has the power of using his limbs while he is in the horizontal posture, yet he is unable to stand erect. Or the degree of paralysis may vary at different periods. Thus it may be complete at first; then, after three or four days, the power of motion may be in some degree restored; then it may be lost again. Sometimes, although the paralysis is complete, or nearly complete, in the first instance, so speedy a recovery takes place, that the patient is able to walk in the course of three or four weeks, or even sooner; or the converse of this may happen, so that although there is no more than a weakness of the muscles immediately after the accident, complete paralysis may take place, sometimes gradually, at other times almost suddenly, after the lapse of several weeks.

Paralysis of the lower limbs is more common than that of the upper. In some cases, in which the injury has affected the spinal chord in the lower part of the neck, the lower limbs are rendered paralytic, while there is either no paralysis, or a less degree of paralysis, in the upper limbs. The reason of this is sufficiently obvious to any one who considers what are the origins of the nerves which form the axillary plexus, some of them being probably above the part which is injured; but the circumstance is still remarkable in this respect; that it is contrary to what happens when the functions of the spinal chord are interrupted in consequence of caries of the cervical vertebræ. In these last-mentioned cases the paralysis is often complete in the upper limbs for many weeks, or even for months, before it extends to the lower. I have met with only a single case, in which, after an injury of the

cervical portion of the spine, there was almost complete paralysis of the muscles of the upper extremities, and none whatever of those of the lower.

A case is recorded by Mr. Stafford, in which there was paralysis of both the upper and the lower limbs, consequent on an injury of the loins, with fracture and displacement of the lumbar vertebræ; and another case fell under my own observation in which paralysis of the upper limbs followed a contusion of the middle dorsal vertebræ. I conclude that such cases are no more than apparent exceptions to the general rule, of the paralysis being confined to the parts which are below the injured portion of the spinal chord. It is easy to suppose that the bones may be fractured or displaced in the loins or back, or that blood may be extravasated within the theca vertebralis in one or the other of these situations, while another part of the spinal chord as high as the origin of the nerves which form the axillary plexus, suffers from the effects of concussion.

Paralysis, after an injury of the spine, is always a dangerous symptom; but many persons thus affected recover nevertheless. For example; a gentleman was thrown from his horse, and received a severe blow on his back. Five weeks afterwards he became paralytic in his lower limbs; but at the expiration of fifteen or sixteen weeks more he began to recover the use of them, and he was able to walk with the assistance of a stick, when I was consulted about a year afterwards. I have known many cases very nearly resembling this in all essential circumstances. A patient in St. George's Hospital, whose lower limbs were paralytic after a

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wounded by a dagger in the neck, and immediately became paralytic in all the parts below the injury. Nevertheless, in less than six weeks he began to reacquire the use of his muscles, and he was able to walk slowly and cautiously at the end of four months. The records of surgery contain histories which are still more remarkable, in which the spinal chord is said to have been completely divided without the production of paralysis, either at the time or afterwards. Such histories, however are rare,* and until they are confirmed by further observations, it must remain as a question, whether it be more probable that there should have been so remarkable a deviation from the ordinary course of events or that the state of the spinal chord in those cases should have been carelessly or insufficiently examined. Undoubtedly our judgment respecting them is not assisted by the analogy of those other cases, which have been described by Magendie, Velpeau, and others, in which the circumstance of a portion of the spinal chord having been reduced to an apparently semi-fluid state without consequent paralysis, may be explained by supposing that there were nevertheless sufficient remains of the medullary fibres to answer the purpose of transmitting the nervous influence.

Muscular Spasms.—A gentleman, in October 1827, was thrown from his horse, which afterwards rolled over him. His head was not struck, and the principal injury seemed to have fallen on the lower part of the spine. Soon after the fall, and while he was yet lying on the ground, his thighs were raised spasmodically towards the trunk, and this was followed by an involuntary tremulous motion of the lower limbs. Afterwards the lower limbs became paralytic, and continued in that state for a period of two months. At the end of that time he began to recover, and when I was consulted, about a year after the accident, he was able to walk without even the assistance of a stick.

In the observations on injuries of the brain which I formerly

* I refer especially to two cases quoted by Velpeau from the Mémoires de l'Academie des Sciences and Desault's Journal.

communicated to this Society,* I mentioned some circumstances which seem to show that the convulsions which occasionally occur at an early period after a severe blow on the head, are the consequence of a slight extravasation of blood, which is sufficient to operate as a cause of irritation, without actually destroying the functions of the brain. Whether the convulsions which took place in this instance had a similar origin, or arose from that disorganisation of the spinal chord which is the most usual cause of paralysis after concussion, must be left to future observations to determine. The same symptoms sometimes occur at a later period. For example: a man 45 years of age, in January 1825, fell from a scaffold and received a blow on his back. All the parts below the epigastrium became immediately paralysed. At the end of nine days it was observed for the first time that a slight involuntary action of the muscles of the thighs was induced when pressure was made accidentally on these parts. Afterwards severe cramps and painful convulsions took place, whenever pressure was made on any part of the body, or even by lifting up the bed-clothes. At last they were almost constant, so as continually to awaken him from his sleep. When he died, nine weeks after the accident, it was ascertained that there had been a fracture of the fourth dorsal vertebra, with such a degree of displacement as to produce a slight degree of pressure on the spinal chord. There was an abscess, containing from four to six ounces of pus, communicating with the fracture, and extending into the posterior mediastinum. The membranes of the spinal chord, and the spinal chord itself, presented a natural appearance externally, but on the latter being

was made to restore the displaced vertebræ to their natural position, and was attended with some, but not complete, success. At the end of a month he became affected with slight involuntary motions of the lower limbs, and at the same time he began to recover the power of moving them voluntarily. Early in the following January he quitted the hospital, and I have had no opportunity of seeing him or hearing of him since.

In each of the two last-mentioned cases there was some degree of pressure on the spinal chord; and I am the more inclined to believe that this was the cause of the spasmodic affection of the muscles, as I have not met with any case in which it was proved by dissection that this symptom existed in combination with disorganisation of the chord, and independently of pressure on it.

Affections of the Nerves of Sensation.—If the spinal chord be lacerated, or subjected to any considerable degree of pressure, the sensibility of the parts below the seat of the injury is totally destroyed. If the injury be in the situation of the sixth or seventh cervical vertebra, the destruction of sensibility is frequently partial in the upper extremities, while it is complete in the trunk and lower extremities; but if it correspond with the two vertebræ immediately above these, the patient, during the short remaining period of his life, presents the extraordinary phenomenon of a living head, with its sensibility and muscular powers unimpaired, attached to a trunk and extremities, of the existence of which he is totally unconscious.

In cases of concussion of the spinal chord, there are the same varieties with respect to the destruction of sensibility as there are with respect to that of the power of voluntary motion. Sometimes it is everywhere complete; at other times it is complete in one part and not in another, or the sensations may be dull in every part of the body, although not totally destroyed. Sometimes the skin appears to be insensible, the patient being nevertheless conscious of pressure made on the more deeply-seated parts.

Not unfrequently, unusual sensations are referred to parts, the nerves of which are actually incapable of conveying to the

sensorium the impressions made by mechanical pressure, or the application of heat. Sometimes the patient complains that he feels as if he had been everywhere severely bruised; or he has a sense of burning, or of tightness and constriction. In many instances, the destruction of sensibility is incomplete at first, but becomes complete afterwards, as the process of softening makes progress in the injured portion of the spinal chord. Where recovery takes place, the restoration of sensibility usually precedes that of the power of voluntary motion; so that the patient may be quite sensible of external impressions, while he is still incapable of employing his muscles for any useful purpose. The last observations apply equally to all cases, whether the spinal chord has suffered from concussion, or from the pressure of displaced vertebræ.

Affection of the Respiration.—It is well known, that if the spinal chord be divided or lacerated above the origin of the phrenic nerves, that is, above the situation of the third cervical vertebra, immediate death is the consequence. Under these circumstances the nervous influence is no longer transmitted either to the diaphragm, or to the other muscles of respiration, and the animal perishes in the same manner as from strangulation. If respiration be performed artificially, by inflating the lungs, the action of the heart may be maintained, so as to cause life to be prolonged for several hours.

Pressure made on the superior portion of the spinal chord, in consequence of dislocation or fracture, is attended with a similar result. A case of sudden death from dislocation of the second vertebra is recorded by Petit, and other similar cases are described by Sir Charles Bell and Mr. Stafford. The latter author mentions two cases of death taking place immediately, from fracture of the second and third cervical vertebræ. I attended a young gentleman who laboured under symptoms of caries of the superior cervical vertebræ, and who, after having eaten a hearty dinner, suddenly expired while altering his position in bed. The body was not examined, but there was good reason to believe that the

spinal chord was compressed in consequence of a dislocation of the odontoid process of the second vertebra.

Dislocations of the first and second vertebræ do not, however, prove fatal in this manner in every instance. A most remarkable example of this fact has lately been communicated to the Society by Mr. Phillips. In this case the dislocation was the result of accidental violence. A child, 4 or 5 years of age, was admitted into St. George's Hospital, labouring under well-marked symptoms of caries of the cervical vertebræ. The function of respiration was unimpaired. Soon after her admission other symptoms supervened, similar to those which arise from hydrocephalus, and she died as if from pressure on the brain. On examining the body, the ventricles of the brain were found to be much distended with fluid. The transverse ligament of the second cervical vertebra had given way, and the odontoid process formed a considerable projection into the spinal canal. The dura mater, however, was entire, and prevented the dislocation being so complete as it would have been otherwise. The pressure on the spinal chord was not sufficient to destroy its functions, although it might well be supposed to have operated as a cause of irritation, so as to produce the effusion into the ventricles of the brain. Another patient, a lad about 16 years of age, who had been admitted into St. George's Hospital, labouring under a caries of the cervical vertebræ, died under similar circumstances.

When the spinal chord is seriously injured in the lower part of the neck (that is below the origin of the phrenic nerves), or in the upper part of the back, there is nothing to interfere with the due action of the diaphragm, while the intercostal muscles, as well as the muscles of expiration, are rendered paralytic. The patient therefore breathes by the diaphragm only. The ribs are motionless, and the air is expelled from the lungs, not by the contraction of the abdominal muscles, but simply by the elasticity of the abdominal parietes, and the pressure of the abdominal viscera operating on the lower surface of the diaphragm, where that muscle is relaxed. It may be presumed that v

circumstances expiration is never so complete as where it is the result of muscular action. At all events, we may observe that the patient is incapable of expectorating mucus if it be collected in the trachea: that, if he coughs, the cough is peculiar, being effected by a forcible inspiration, followed by a sudden relaxation of the diaphragm; and that if he be placed in the sitting posture, so that the pressure of the abdominal viscera is removed from the diaphragm, he breathes with much greater difficulty than when he is lying down. All these are to be regarded as very formidable symptoms. Such imperfect respiration seems to be insufficient for the maintenance of life: the patient seldom survives so long as the sixth day, and he more frequently dies in less than forty-eight hours after the occurrence of the accident. Recoveries under these circumstances are very rare.

Injuries of the spinal chord in the lower part of the neck are not, however, necessarily followed by these results. The pressure on the spinal chord may be so small, or the disorganisation of it from concussion may be so trifling, that the muscles of respiration are not, at any period, affected by it: or they may not be so in the first instance, and yet become affected afterwards. In one case which fell under my observation, and in which there was a fracture of the seventh cervical vertebra, followed by a softening and dissolution of the spinal chord, the difficulty of respiration did not take place until the twelfth day; but death occurred in less than three days afterwards.

In proportion as the injury affects the spinal chord lower down in the back, so the respiratory function is in a less degree impaired. In a case of fracture of the sixth dorsal vertebra, I observed (what indeed we might well expect to happen) that although inspiration was well enough performed, the abdominal muscles did not act in expiration. Wherever the injury is situated, a disposition to cough, with a copious expectoration, is likely to occur some time after the accident. In one case, in which there was a fracture of the eleventh dorsal vertebra, with softening of the spinal chord in the same situation, these symptoms began as

early as the third day; and such was the disposition to cough that it was induced by any slight change of position. Nevertheless, this patient survived until the end of the fifth week.

Priapism.—This is a very common symptom of injury of the spinal chord, and it is remarkable that, although under ordinary circumstances, the erection of the penis is the result of an impression communicated from the sensorium, I have never known it to occur, in these cases, except in combination with paralysis. Priapism may take place whether the patient suffers from the effects of simple concussion of the spinal chord, or from those of pressure. It seems to be connected with injuries of the upper, rather than with those of the lower portion of the chord: at least, I am not aware that I have met with it where the seat of the injury, has been below the sixth dorsal vertebra. It is for the most part an early symptom, showing itself in the course of the second or third day, and it seldom continues after the first fortnight. It occurs even where the sensibility of the parts is totally destroyed, and may be induced by the mechanical irritation caused by the introduction of the catheter, where the patient is entirely unconscious of the operation. This circumstance was pointed out to me many years ago by Professor Macartney, of Trinity College, Dublin; and I have had many opportunities of verifying the correctness of the observation.

Affections of the Urinary Organs.—Paralysis of the lower half of the body is, as might be expected, attended with an inability to void the urine; so that the patient requires the aid of the catheter. In the great majority of cases he is not sensible of any inconvenience; and indeed is totally unconscious of the bladder being distended: but there are exceptions to this rule, and occasionally he suffers as he would from an ordinary retention of urine, but in a less degree. The incapability of voiding the urine is usually an early symptom, and in fatal cases it continues to the last. When a complete or partial recovery takes place, the power of emptying the bladder is restored sooner than that of using the muscles of the lower limbs. In cases in which the catheter is not employed,

the urine flows involuntarily, as in most other cases of over-distended bladder. At other times there is a constant dribbling of urine, although the bladder is in a contracted state, so that on the introduction of the catheter no urine flows.

None of the consequences of injuries of the spinal chord are more remarkable than the changes which are produced in the secretions of the kidneys and bladder. My attention was first called to this subject as long ago as the year 1807; and my subsequent experience has enabled me to make the following observations on the subject.

The first effect of a severe injury of the spinal chord is not unfrequently to occasion a marked diminution in the quantity of urine secreted. This is most observable where the injury is in the lower part of the neck, and where, in consequence, the function of respiration is very much impaired. Thus, in a patient in St. George's Hospital, in whom there was a forcible separation of the fifth and sixth cervical vertebræ, complicated with fracture and depression of bone, and laceration of the spinal chord, four ounces of urine were drawn off by the catheter at the end of twenty-four hours after the occurrence of the accident, and when he died at the end of twenty-six hours more, the same quantity was found in the bladder, none having been voided in the intermediate time. The same thing, however, may occur when the injury is in the lower part of the spine. For example: a gentleman received a blow on the loins, which occasioned, in the first instance, a partial paralysis of the muscles of the lower extremities. He never experienced any difficulty in voiding the urine, but the secretion was almost entirely, if not entirely, suspended during the first twenty-four hours. I did not see this patient at the time, but I cannot doubt the accuracy of the report which he made when I was consulted some time afterwards.

In some cases, the urine which is first secreted after the occurrence of the accident, although of an acid quality, and free from mucus, has a peculiarly offensive and disgusting odour. In other cases the urine is highly acid, having an opaque yellow appearance,

and it deposits a yellow amorphous sediment. In one case this colouring matter was in such abundance, that it was found after death to have imparted a yellow tint to the mucous membrane of the bladder, which, at the same time bore no marks of inflammation, even exhibiting less appearance of vascularity than under ordinary circumstances.

But the most common change produced in the urine by an injury of the spinal chord is the following: It is voided of an ammoniacal odour, and turbid; when allowed to cool and remain at rest, it deposits a large quantity of adhesive mucus, and when tested with reddened litmus or turmeric paper, it is found to be highly alkaline. After some time a quantity of white matter (phosphate of lime) may be detected in the mucus, and it is tinged with blood. At a still later period a considerable quantity of coagulum of blood is blended with the mucus and urine. These appearances very commonly show themselves as early as the second or third day after the occurrence of the accident; sometimes not before the end of a week, or even eight or nine days. I have not observed that injury of one part of the spine is more liable to produce them, than injury of another. There is a great variety as to the period of their duration. In fatal cases they sometimes continue to the last, even though the patient should survive for several weeks, or even months; at other times they continue for two or three weeks, then subside, and the urine remains transparent, and of an acid quality afterwards. In other cases the quality of the urine varies almost from day to day, without any manifest reason for the change. It may be alkaline, depositing adhesive mucus; then clear and acid; then alkaline again; and these alterations may take place several times in the progress of the same case.

It is well known to pathologists that such adhesive mucus as is here described is never a constituent part of the urine as it is secreted by the kidneys, but that it is furnished by the mucous membrane of the bladder and ureters, especially of the former, when in a state of inflammation. The effect therefore of an injury

of the spine is, in many instances, to occasion inflammation of the mucous membrane lining the urinary organs; and the consequences of such inflammation where the urine has continued alkaline and loaded with mucus up to the time of the patient's death, are very manifest on dissection. The mucous membranes of the bladder, ureters, pelves and infundibula of the kidneys is highly vascular; and in some cases the bladder is lined with phosphate of lime, which the mucus has deposited on its surface. Occasionally spots of extravasated blood are found in the glandular substance of the kidneys, and loose masses of coagulum in the pelves of the kidneys and in the bladder.

An interesting question here presents itself, whether the inflammation of the mucous membrane of the bladder be a primary or a secondary disease? Whether the injury of the spinal chord operates directly on the mucous membrane, or whether its first effect is to alter the quality of the urine, as it is formed by the kidneys, the mucous membrane becoming affected afterwards, in consequence of the irritation excited in it by the contact of an unhealthy and stimulating secretion. These points remain to be determined by future observations.

Affections of the Digestive Organs.—In the first instance, whatever be the seat of the injury in the spinal chord, the bowels are torpid, so that they cannot be made to act except under the influence of the most powerful purgatives. Then the abdomen becomes tympanitic; and in fatal cases, however protracted, these symptoms generally continue, in a greater or less degree, to the last.

The same state of the nervous system which produces costiveness, occasions incontinence of the fæces which have already reached the rectum, so that the evacuations take place involuntarily, without the consciousness of the patient. In many cases in which the injury is in the cervical portion of the spinal chord, and death takes place in the course of two or three days, there is a disposition to vomit. In one case which fell under my observation, there was incessant vomiting of a large quantity of dark-

coloured fluid; in another case, in which the patient died on the fifth day, during the two days which preceded his dissolution, there was a perpetual gulping, and ejection of a similar diseased secretion.

In more protracted cases the alvine evacuations are of a black colour; semi-fluid, somewhat resembling tar or treacle in their appearance, and of a peculiar and offensive odour.

It has not been ascertained, as far as I know, what is the nature of the substance on which this dark colour depends. It certainly is not mere extravasated blood. Probably it is furnished by the secreting vessels of the stomach and intestines, and corresponds to the dark-coloured matter which is sometimes vomited at the termination of typhus fever, or to the black sordes which, under the same circumstances, are attached to the gums and teeth. It is only within the last two or three years that my attention has been directed to the subject, and further observations are required for its elucidation.

Alteration of the Vital Temperature.—M. Chossat has published an account of some experiments on animals, in which he found that the division of the superior portion of the spinal chord produced a remarkable evolution of animal heat, so that it was raised much above the natural standard. I have made experiments similar to those of M. Chossat, and have met with similar results. I have also seen several cases in which an accidental injury of the spinal chord has produced the same effect. The most remarkable of them was that of a man who was admitted into St. George's Hospital, in whom there was a forcible separation of the fifth and sixth cervical vertebræ, attended with an effusion of blood within the theca vertebralis, and laceration of the lower part of the cervical portion of the spinal chord. Respiration was performed by the diaphragm only, and of course in a very imperfect manner. The patient died at the end of twenty-two hours; and for some time previously to his death, he breathed at very long intervals, the pulse being weak and the countenance livid. At last there were not more than five or six inspirations in a minute. Never-

theless, when the ball of a thermometer was placed between the scrotum and the thigh, the quicksilver rose to 111° of Fahrenheit's scale. Immediately after death the temperature was examined in the same manner, and found to be still the same.

In the year 1812 I published an account of some experiments made on rabbits, in which it was found that when these animals were stupefied by the action of the Woorara poison, although the same quantity of oxygen gas was consumed in respiration as under ordinary circumstances, little or no animal heat was generated. In the case to which I have just referred, the effect was exactly the converse of that which was produced in these experiments; the respiration being so imperfect, that the consumption of oxygen must have been very much diminished, yet the production of animal heat was much greater than under ordinary circumstances.

Gangrene.—One result of an injury of the spinal chord is a diminution of the vital powers of the external parts, so that gangrene takes place, and sloughs are formed, on even the slightest pressure.

This disposition to gangrene is evidently a direct consequence of the injury of the chord, since it occurs equally whether the action of the heart be strong or feeble, and is limited to those parts which are below the seat of the injury.

In many cases in which the injury has affected the cervical portion of the spinal chord, sloughs begin to be formed, not only on the sacrum and nates, but even on the ankles, as early as the second day. In the last-mentioned parts we have the opportunity of watching the gradual formation of the sloughs. There is first a purple appearance of the skin; then a vesication containing a dark-coloured fluid; and this is for the most part immediately followed by the loss of vitality in the subjacent textures. When the injury has affected the dorsal portion of the spinal chord, the sloughs are generally, but not always, confined to those parts on which the pressure is greatest; that is, to the integuments of the nates and sacrum; and the formation of them begins at a later period. It is remarkable that in these last-mentioned cases the

separation of the sloughs begins at an unusually early period, fresh sloughs being formed immediately afterwards.

Affection of the Sensorium.—I refer in this place merely to the effect produced on the sensorium immediately after the accident has occurred.

I have seldom observed the sensorium to be materially affected, except where the injury was in the cervical portion of the spinal chord, and here the results are very different in different cases.

Thus, in one patient, in whom there was a fracture of the fifth and sixth cervical vertebræ, with displacement of bone and laceration of the spinal chord, the functions of the sensorium were in no degree disturbed, the patient being perfectly conscious and talking rationally. Another patient, in whom the same part of the chord was bruised and lacerated, became comatose soon after the accident. On some blood being taken from the arm, the coma subsided; but at the end of twelve hours he became again comatose, and continued so until he died, ten hours afterwards. A third patient, in whom there was a fracture of the fourth and fifth cervical vertebræ, with softening of the spinal chord, was at first perfectly conscious and sensible. In less than twenty-four hours he fell into a state approaching to that of complete stupor; then became delirious, and continued so until he died, thirty-six hours after the accident. A fourth patient, in whom there was a small extravasation of blood in the centre of the spinal chord, opposite the fifth and sixth cervical vertebræ, died in less than forty-eight hours, having been sensible and conscious nearly to the last, but the pupils of his eyes being contracted.

Symptoms not included under the foregoing heads.

The first effect which a severe injury of the spinal chord (whatever may be the exact nature and seat of the injury) produces on the circulation, is to lessen the force of the heart's action, and to cause a state of general depression and collapse; the pulse being

very feeble, contracted, and sometimes scarcely perceptible. Occasionally a rigor takes place soon after the accident has occurred.

When the injury is in the lower part of the neck, the patient not unfrequently dies before complete reaction is established, the pulse remaining feeble to the last; or it may beat distinctly, but not oftener than fifty or sixty times in a minute. In the majority of cases, however, after the first twenty-four hours, the pulse rises to ninety-six or a hundred in a minute; but still it is feeble and contracted, indicating a state of great general debility rather than the existence of an active inflammatory disease. The appearance of the tongue corresponds to the character of the pulse; and it is not unusual at the end of twenty-four hours to find it dry and parched, covered with a brown fur, which is soon converted into a black crust, resembling what we observe in the last stage of a continued fever.

When the injury is in the lower part of the neck, but not of such a nature as to occasion death within the first three or four days, or where it has affected the dorsal or lumbar portion of the spinal chord, and the patient does not die at an early period, or ultimately recovers, the pulse usually remains for a considerable time more frequent than natural, varying from ninety to one hundred and twenty beats in a minute, but feeble and contracted, the tongue at the same time becoming more clean and moist than it was in the first instance. If blood be drawn under these circumstances, the coagulum is of a large size and loose texture; often never exhibiting any inflammatory appearances whatever; sometimes having a slight buffy coat on its surface in the first instance, but none afterwards. As far as I have seen, these observations apply to all those cases in which the effect of the injury is to induce that softening of the medullary substance of the spinal chord, which may or may not terminate in its complete dissolution, without exciting inflammation of the membranes in which it is enveloped; and these facts go far towards confirming the opinion which I have already ventured to express, that this change in the organisation of the chord is to be regarded as the result of a

peculiar process, which may exist independently of inflammatory action.

Inflammation of the membranes of the spinal chord is undoubtedly a much more rare consequence of injuries of the spine, than inflammation of the membranes of the brain is of injuries of the head. In the cases of this kind which have fallen under my observation, the process of softening and dissolution of the spinal chord had gone on simultaneously with the inflammation of the membranes, and there were during life all those symptoms by which the existence of the former of these affections is indicated in other instances. But superadded to these, there were profuse perspirations, and severe and repeated rigors marking the occurrence of suppuration: there were also spasmodic twitches of the voluntary muscles, but not until it might reasonably be supposed that pus was collected in sufficient quantity to make pressure on the spinal chord. I have already mentioned cases in which pressure arising from other causes produced a similar effect.

Sir Charles Bell has described two cases, in which inflammation and suppuration of the membranes of the spinal chord followed injuries of the spine, unconnected with softening of the chord itself, and producing symptoms a good deal similar to those which are described as taking place where these membranes are inflamed from other accidental causes. In the first of these was a fracture of the eleventh dorsal vertebra. The patient was affected with delirium, attended with a rapid pulse. The most remarkable circumstance was, that there was no loss either of sensation or of the power of voluntary motion. Death, preceded by typhoid symptoms, took place on the fifth day.

In the other case recorded by Sir Charles Bell, the injury was in the lower cervical and first dorsal vertebræ, and the whole of the spinal chord, from this part to the lower part of the loins, was found after death to be bathed in pus. There were no severe or urgent symptoms for the first eight days; then the patient was seized with violent convulsions, followed by fever and delirium. There were no paralytic symptoms until the tenth day, when there

place, as they explain why the danger to the patient's life is greater and more imminent in proportion as the injury is nearer to the brain. According to my experience, where a considerable injury has been inflicted on the spinal chord in the lower part of the neck, or in the neighbouring part of the back, of such a nature as to paralyse all the muscles of respiration, with the exception of the diaphragm, the patient rarely survives to the end of the fourth or fifth day, while in the majority of cases he dies at a still earlier period. The following case (to which I have already had occasion to refer) can scarcely be regarded as forming an exception to this general rule. In the patient to whom I allude, there was a fracture of the seventh cervical vertebra. The respiration was not affected in the first instance. On the twelfth day he suddenly began to breathe with difficulty, and by the diaphragm only; on the following day he died. On dissection it was ascertained that there was some displacement of the fractured bone, but not sufficient to occasion pressure on the spinal chord. An inch and a half of the chord was in a softened state, but the softening process had not proceeded so far towards dissolution, as in many other cases at the same period. I conclude that the chord had, in the first instance, undergone a very trifling degree of disorganisation, and that it was only as the effects of the concussion became more completely developed that the difficulty of respiration commenced.*

* In a case under the care of Mr. Green, in St. Thomas's Hospital, reported in the Medical Gazette (vol. i. p. 224), in which there was a fracture and dislocation of the seventh cervical vertebra, the patient survived until the seventeenth day; but it was stated that the respiration was difficult, performed by the action of the diaphragm, with a trifling action of the intercostal muscles. The respiration became more difficult afterwards, but the exact period at which this change took place is not noticed. In another patient, also under the care of Mr. Green (Medical Gazette, vol. vi. p. 190), in whom the third dorsal vertebra was the seat of the injury, there was in the first instance paralysis of the lower limbs, and it is represented that he breathed by the action of the diaphragm only; this last observation, however, was evidently erroneous, as he breathed easily, and as there was a slight motion of the ribs, attributed by the reporter to the expansion of the lungs. Respiration by the diaphragm only is always difficult and the expansion of the lungs following the descent of the diaphragm is quite insufficient to account for the motion of the ribs. This patient recovered.

Cases of recovery even after what may be regarded as a severe injury of the spinal chord, are by no means uncommon. If it suffers from the effects of concussion, the recovery may be complete; the period of recovery varying from three weeks to twelve months or more. If the chord be lacerated, or much compressed by displaced bone, he may live, but without recovering from the paralysis. Under these circumstances, life may be prolonged for an indefinite period. A man was admitted into St. George's Hospital in January 1823, who had met with an injury in the preceding August, in consequence of a mass of chalk having fallen upon him while working in a chalk-pit. Mr. Hardwicke, of Epsom, being sent for, found the first lumbar projecting over the last dorsal. With some difficulty he reduced the displaced vertebra to its natural position, the reduction (as I was informed) taking place with a jerk or snap. At the time of his being received into the hospital, he had some power of using his lower limbs while in bed, but he could neither walk nor stand, and he was unable to empty his bladder without the aid of the catheter. He remained nearly in the same state when he quitted the hospital, two months afterwards. When I last heard of him, after the lapse of two or three years more, he was still alive, but no material alteration had taken place in his symptoms.

Section III.

Treatment of Injuries of the Spine.

In making this communication to the Society, my principal object has been to analyse and arrange the pathological changes, and the symptoms to which injuries of the spine give rise. But I am unwilling to leave the inquiry so incomplete as it would be if I were to omit altogether the consideration of the surgical treatment which these accidents require; and I shall therefore in conclusion offer some brief observations in illustration of the last-mentioned subject.

When a bone is dislocated, or when it is fractured and displaced, the first question which presents itself to the surgeon is, whether it ought to be restored to its natural situation? and if so, how is that to be accomplished?

Dislocations and fractures, with displacement of the cervical vertebræ, are not always immediately fatal; and I cannot say that no circumstances can exist which would justify the attempt to effect reduction in such cases: but it is evident, that if the attempt be made at all, it must be with the greatest caution, and Boyer describes a case in which a child died under it.

There can, however, be no doubt, that when the injury is in the lower part of the spine, the attempt to effect reduction may be not only made with impunity, but that it may be successful. In proof of this assertion, I may refer to a case which I have already described, which occurred in the practice of Mr. Hardwicke, of Epsom; the patient being afterwards admitted into St. George's Hospital, labouring under paralysis of the lower limbs. In another case, to which also some allusion has been already made, and which occurred under my care in St. George's Hospital, there was a fracture with great displacement of the third and fourth lumbar vertebræ. When the patient had recovered from the state of collapse which had followed the first shock of the accident, I endeavoured, by fixing the thorax and cautiously extending the pelvis, to restore the vertebræ to their proper place. The attempt was in some degree successful, and no ill effects of any kind resulted from it.

Some discussion has of late years been excited, in consequence

canal; but the removal of any portion of the vertebra which is accessible to an operation, will be of little avail, as the irregularity in the anterior part of the canal, made by the displacement of the body of the vertebra, must be the same after, as it was before, the operation.

If there be simply a fracture on each side of the spinous process, with a depression of the loose or intermediate portion of bone, of course there must be a corresponding diminution of the size of the vertebral canal; but as that canal is much larger than the spinal chord, which it contains, it does not follow that the spinal chord is really compressed, or that any material diminution of the symptoms would follow the elevation of the depression.

But let it be supposed that the spinal chord is really suffering from pressure: it has been already shown, that a much less degree of violence than that which is necessary to occasion a fracture of the spine, may produce concussion, softening, and ultimately dissolution of the spinal chord, with a train of symptoms much worse than those which arise from simple pressure. Now no operation can be of the smallest advantage in this respect: but, on the contrary, if it be necessary to apply the saw in the performance of it, the jar and disturbance of the parts which this must occasion is even likely to aggravate the mischief.

If these views be correct, it is evident that the cases, in which there are any reasonable grounds for the performance of the operation, must be of very rare occurrence; and that even under the most auspicious circumstances it must be doubtful whether it may not be productive of harm rather than of good to the patient.

Nor, as far as I am acquainted with the results, do the experiments, which have been hitherto made on the subject, lead to any more satisfactory conclusion. I am not aware that in any of the cases, in which it has been hitherto performed, the operation has proved the means of preserving the patient's life, or even of relieving any of the more important symptoms.

In the treatment of mechanical injuries generally, nothing is of so much importance as the maintenance of the injured parts in

a state of complete repose, and it is not less indispensable for us to observe this rule in cases of injury of the spine, than it is on other occasions. With this view we lay the patient in a supine and horizontal posture on a mattress. We can attain what is wanted in this respect by no other means: otherwise, as good a reason might be offered for placing him on his face, with his spine uppermost, as for placing the head on a high pillow in a case of apoplexy or concussion of the brain.

I have shown that, in some cases, an injury of the spine is followed by inflammation of the membranes of the spinal chord, and there can be no doubt that it is then necessary to take blood from the arm, and even to repeat the blood-letting several times. The state of the pulse forms a sufficient indication to the practical surgeon of the necessity of such active treatment, and the appearances of the blood after it is drawn will assist his judgment in determining to what extent it should be carried. It is, however, if my experience has not much misled me, a great mistake to suppose that blood-letting is always proper. In the majority of cases the state of the pulse is such as actually to contra-indicate the abstraction of blood, and, as I have already stated, the blood when drawn does not in general present those appearances which are supposed to mark the existence of inflammation. I have no reason to believe that blood-letting arrests the process of softening and dissolution of the spinal chord, and indeed I have usually found that the symptoms which mark the existence of these changes, make a more rapid progress, in proportion as a larger quantity of blood is taken away. The weak and contracted pulse, the disposition to gangrene, the alkaline quality of the urine, the black and offensive alvine evacuations, and the brown or black fur on the surface of the tongue, would, under other circumstances, be regarded as proofs of depression and debility, indicating the use of stimulants rather than of what are called antiphlogistic remedies. From all that I have seen, I cannot doubt that much harm has arisen from the indiscriminate application of the practice,

which is usually proper and necessary after injuries of the head, to cases of injury of the spine.

I have stated that a torpid state of the bowels is almost a constant result of these accidents, such as cannot be overcome except by the exhibition of powerful purgatives. I have generally found that the combination of ammonia facilitates their action, and that it will often enable them to produce the desired effect, when they would not have produced it otherwise. Attention to this part of the treatment is especially required when the evacuations are black and offensive. The retention of the unhealthy secretions, on which these qualities depend, cannot be otherwise than injurious to the general system.

The use of the catheter is necessary from the beginning, in all cases in which the lower part of the body is paralytic. It does not, however, prevent the urine becoming alkaline, nor the secretion of adhesive mucus from the lining membrane of the bladder. When these changes have taken place, the bladder should be emptied several times daily; and it may be advisable in some instances to inject tepid water into it, so as to prevent any portion of the mucus being retained in its cavity. The mucus is itself the product of inflammation; but, on this, as on other occasions, it forms an irritating application to the parts with which it comes in contact, and thus tends to aggravate and increase the inflammation, on which the formation of it originated.

In the treatment of those cases of injury of the spinal chord in which gangrene takes place from pressure, we labour under greater difficulties than in ordinary cases of gangrene, owing to the very slight degree of pressure which is sufficient to produce these frightful consequences. All that it lies in our power to do is to cause the pressure to be diffused over as large a surface as possible, and to endeavour to increase the force of the heart's action by the prudent exhibition of stimulants.

AN ACCOUNT OF A CASE OF

ANEURISM BY ANASTOMOSIS OF THE FOREHEAD.

TREATED BY THE APPLICATION OF LIGATURES.

FROM VOLUME XV. OF THE MEDICO-CHIRURGICAL TRANSACTIONS, 1829.

THE disease which Mr. John Bell has described under the name of Aneurism by Anastomosis* is, according to my experience, of comparatively rare occurrence. Three cases of the kind, however, have been already recorded in the Transactions of this Society, and to these I am now induced to add a fourth, the history of which will probably be deemed not devoid of interest, inasmuch as the disease had existed for many years, gradually increasing until it had reached an alarming extent, and after other methods of treatment had been employed to no purpose, was ultimately

* I have employed the term Aneurism by Anastomosis, because it has become (in this country at least) sanctioned by custom, and for the purpose of avoiding the inconvenience which attends the frequent change of surgical nomenclature. At the same time I must acknowledge that it appears to me to be liable to more than one objection. 1st. I am not aware that it has been proved that there is in these cases any actual increase of the anastomosis which naturally exists between the smaller arteries. The phenomena of the disease are sufficiently explained on the supposition of the arteries being simply dilated and elongated, and thereby rendered tortuous; and the very interesting dissection recorded by Mr. Mayo in the Medical Gazette, vol. i. p. 261, renders it probable that this is the only change that really takes place in the condition of the bloodvessels. 2nd. The term aneurism by anastomosis might with equal propriety be applied to some other blood-vessel tumours, certain nævi, for example, which nevertheless differ from the disease in question in many essential circumstances.

cured by a very simple operation, founded on the same principle with that which Mr. White and Mr. Lawrence have recommended in cases of the vascular nævus of infants.

Miss ——, in the year 1809, being then about 5 years of age, received a severe blow on the forehead, in consequence of her having run against the corner of a bed-post. Soon afterwards a small pulsating tumour, not larger than a pea, was observed on the part on which the blow was inflicted. For many years the tumour remained nearly stationary, and as it produced no inconvenience, it excited but little attention. In the year 1821 it had manifestly increased in size, in consequence of which a surgeon in London was consulted, who attempted to cure the disease by pressure. For this purpose, compresses were applied over the tumour, secured by a tight bandage round the head. Under this treatment the patient suffered from a constant and severe pain, and so far was it from being of any service, that, as soon as the pressure was left off, the tumour seemed to grow more rapidly, and the pulsation in it became stronger than before. From this time also there were frequent attacks of intense head-ache, which were to be relieved only by blood-letting.

After this no local treatment was resorted to, until the year 1824, when the tumour having increased to a still larger size, another attempt to restrain its growth by pressure was instituted under the direction of Sir Astley Cooper, but with no more favourable result than formerly.

In the end of June 1826, the disease having made still further progress, Sir Astley Cooper was again consulted, and by him a ligature was applied (at four different times) round each of the four principal arteries by which the tumour was supplied. The result of these operations was, a slight diminution in the size of the tumour, and, some relief from pain; but even this favourable change was of short duration. In the course of the winter of 1827 the tumour again grew larger, and the painful sensations returned with redoubled violence, attended with a constant sense of weight over the eyes, and excessive depression of spirits.

Occasionally there were paroxysms of pain still more violent than what was usually experienced, and followed by a state of extreme langour and exhaustion.

Miss —— remained precisely in this state, except that the tumour continued slowly to enlarge, until the 9th of October 1828, when she arrived in London after an absence of many months, and I saw her in consultation with Dr. Robertson, of Northampton. The tumour was now bigger than a large double walnut, occupying a spot on the right side of the forehead, immediately below the margin of the hairy scalp. When the fingers were applied to it, they received an impression as if it was composed of a mass of tortuous vessels, and a strong pulsation was perceptible in every part of it. The skin covering the tumour was thin, and on some occasions, as in coughing, when the vessels were unusually distended, it appeared as if on the point of bursting. When the scalp was shaved, large and tortuous arteries were to be seen, even from a considerable distance, passing into the basis of the tumour, in every direction, from each temple, from the orbit of the right eye, and over the crown of the head from the occiput. Pressure being made on the two temporal arteries at the same instant, the pulsation of the tumour was perceptibly, but not greatly, diminished. There was a constant sense of weight and pain in the forehead, and the latter was very much aggravated by pressure on the tumour, especially on a particular spot towards its upper edge.

The sufferings of the patient were such that she was willing to submit to any plan of treatment which might afford even a chance of being relieved. On considering the subject, it appeared to Dr. Robertson and myself that there was no reason to expect advantage from any further attempt to obliterate the arteries by which the tumour was supplied with blood, nor indeed from any operation which had not for its object the complete extirpation and removal of the diseased structure. But the attempt to accomplish this object by means of the knife, would necessarily be made

at the risk of a most alarming hæmorrhage, and the application of the actual cautery or of caustic would not only be uncertain as to the result, but if carried to a sufficient extent completely to answer the intended purpose, might occasion such injury to the bone and periosteum, as would be productive of much subsequent inconvenience, if not actual danger, to the patient. Under these circumstances Dr. Robertson immediately assented to the proposal which I made, that I should endeavour to extirpate the tumour by means of ligatures, so applied as to produce the complete strangulation of it at its base. There seemed at any rate to be no more effectual, nor any safer method of proceeding; but even with respect to this, it was impossible not to experience in the first instance considerable apprehensions as to the loss of blood, which might take place on the separation of the slough. These apprehensions were, however, greatly diminished, if not altogether removed, in consequence of the conviction which we felt, that the unusual dilatation of the principal arteries of the scalp was to be regarded as the effect, and not the cause, of the morbid growth of the smaller vessels, and as being likely to subside immediately on the tumour being destroyed.

A further consultation having been held with Mr. Keate, and afterwards with Sir Astley Cooper, and both these gentlemen having agreed in opinion with Dr. Robertson and myself, I proceeded to perform the operation on which we had determined, on Wednesday the 15th of October, in the following manner:—

A long steel needle, the length of which was about double the diameter of the tumour, was passed between it and the periosteum, penetrating the skin on each side. By means of this needle the tumour was raised as much as possible, and a second needle was introduced in the same manner, but beneath and at right angles to the first. A very strong silk ligature was then bound several times round the base of the tumour below the needles, as tight as it could be drawn. The tumour immediately assumed a purple colour, as if in a state of strangulation. The operation occasioned

great pain both at the time and afterwards; but from the instant of the ligature having been applied, the peculiar sufferings occasioned by the disease were at an end.

In the evening the pulse being strong, the skin hot, and the pain caused by the ligature very severe, some blood was taken from the arm.

October 16th. The pain was somewhat abated, the tumour had assumed a dark colour, and had begun to shrink.

October 17th. The tongue was furred, the pulse hard and frequent, and the skin hot. More blood was taken from the arm.

October 18th. All the arteries entering the tumour had either ceased to pulsate or pulsated less strongly than before, with the exception of those at the upper part. Concluding from this last circumstance that the strangulation was not everywhere complete, and that a still greater degree of compression was necessary, I armed one of the needles with a strong double ligature, then drew it through, and having removed the needle, tied the ligatures one on each side.

October 20th. The other needle was armed in the same manner, and by means of it another double ligature was passed through the base of the tumour, and tied like the former one.

October 22nd. The slough had begun to separate at its edges, and all severe pain had ceased. The pulsation at the arteries at the upper part was greatly diminished.

October 26th. The slough came away without the smallest hæmorrhage. Dry lint, with strips of adhesive plaster over it, was applied to the ulcerated surface.

In the course of a few days the ulcer had assumed a healthy appearance, and had begun to granulate.

The appearance of the ulcer was very carefully watched, and two or three times the nitric acid was applied to some spots on its surface, in which there was an appearance that led Mr. Keate and myself to suspect that there might be a disposition to reproduce the original disease. The sloughs made by the nitric acid soon

separated; the sore continued to heal, and the pulsation of the arteries in the neighbourhood to diminish.

December 2nd. The cicatrix was completely formed, and nothing unusual was to be observed except that between it and the eyebrow there was a slight appearance of fulness, manifestly depending on the skin at this part having been for a long time much distended, and having not yet returned to its original dimensions. There was no more pulsation in the arteries, which had formerly been so much enlarged, than in those of the other side of the forehead, and the patient was free from pain and all other inconvenience.

AN ACCOUNT OF A CASE

IN WHICH

A FOREIGN BODY WAS LODGED IN THE RIGHT BRONCHUS.

FROM VOLUME XXVI. OF THE MEDICO-CHIRURGICAL TRANSACTIONS, 1843.

I AM induced to communicate the following history to the Royal Medical and Chirurgical Society, believing that it embraces some points of considerable practical importance, which may be deemed not unworthy of their attention.

On the 3rd of April 1843, Mr. B. being engaged immediately after dinner in amusing some children, placed a half-sovereign in his mouth. By some accident it slipped behind the tongue, and a violent fit of coughing, in which he had the appearance of being nearly choked, was the consequence. This was immediately followed by vomiting, the contents of the stomach being ejected with considerable force. He strained two or three times after-

less exposed to a cold north-east wind for two days and nights. The cough now became aggravated. He expectorated some mucus slightly tinged with blood, and small portions of a substance answering to the description of a thin membrane. He experienced also a pain in the right side of the chest, referred to a spot corresponding to the situation of the lower portion of the right bronchus.

On the evening of the 9th of April, he took two aperient pills, one of which was ejected by vomiting some time afterwards. In the act of vomiting, he experienced a sensation as if a loose substance had shifted its place in the chest; and for some time afterwards the cough was much relieved, and the pain in the chest entirely ceased.

On the 11th of April the cough was again troublesome. There was little or no expectoration. At this time the chest was repeatedly examined with the stethoscope by Dr. Seth Thompson, but no unusual sounds were detected in any part of it.

On Monday the 17th of April, Mr. B. again went into the country, exposed to a cold easterly wind. On his return to London the cough was much aggravated.

On the 17th of April, by the advice of Dr. Seth Thompson, he consulted Dr. Chambers, and afterwards myself. From the detail of the symptoms, we were all of us led to believe that the half-sovereign had passed into the trachea, and that it remained lodged in the right bronchus.

On the 19th this opinion seemed to be confirmed by a very simple experiment, which Mr. B. had himself made in the interval. He had placed himself in the prone position, with his sternum resting on a chair, and his head and neck inclined downwards, and having done so, he immediately had a distinct perception of a loose body slipping forward along the trachea. A violent convulsive cough ensued. On resuming the erect posture, he again had the sensation of a loose body moving in the trachea, but in the opposite direction, that is, towards the chest.

On the 20th, I saw the patient again, with Dr. Thompson. I

now suggested that a further consultation should be held on the case; and, accordingly, on the following day there was a meeting of Dr. Chambers, Dr. Seth Thompson, Mr. Stanley, Mr. Aston Key, and myself. The chest was again carefully examined by means of the stethoscope, but no difference in the state of the respiration could be detected. The other indications of the existence of a foreign body in the air-passages, however, seemed to be so strong, that no one entertained any doubt on the subject. At this meeting it was agreed that the experiment, which Mr. B. had himself made, should be repeated in a more complete manner. Accordingly, on the 25th of April, he was placed in the prone position, on a platform made to be movable on a hinge in the centre, so that on one end of it being elevated, the other was equally depressed. The shoulders and body having been fixed by means of a broad strap, the head was lowered until the platform was brought to an angle of about 80° with the horizon. At first no cough ensued; but on the back, opposite the right bronchus, having been struck with the hand, Mr. B. began to cough violently. The half-sovereign, however, did not make its appearance. This process was twice repeated, with no better result; and on the last occasion, the cough was so distressing, and the appearance of choking was so alarming, that it became evident that it would be imprudent to proceed further with this experiment, unless some precaution were used to render it more safe.

On the 27th of April, in a consultation of Dr. Seth Thompson, Mr. Aston Key, and myself, it was agreed that an artificial opening should be made in the trachea, between the thyroid gland and the sternum. In proposing this we had a twofold object; the one, that if the coin were lodged in any part from which it might be safely extracted by the forceps, this method might be had recourse to; and the other, that, if relief could not be obtained in this manner, the artificial opening might answer the purpose of a safety-valve, and enable us to repeat the experiment of inverting the body on the movable platform, without the risk of causing suffocation. The operation was immediately performed by myself,

with the assistance of Mr. Aston Key and Mr. Charles Hawkins, and on it being completed, some attempts were made, both by Mr. Key and by myself, to reach the coin with the forceps introduced through the opening. The contact of the instrument with the internal surface of the trachea, however, induced on any occasion the most violent convulsive coughing. The coin was not seized, nor even felt; and our apprehensions of producing some serious mischief were such, that we did not deem it prudent, at that time, to persevere in our endeavours to remove it.

On the 2nd of May, we again made some trials with the forceps, but always with the same result. A violent convulsive action of the diaphragm and abdominal muscles ensued, on each introduction of the instrument; and the danger of groping in the bronchus, under such circumstances, surrounded as it is by the most remarkable assemblage of vital organs in the whole body, appeared to us to be so great, that we did not think ourselves justified in proceeding further. We were the more inclined to abandon the experiment with the forceps, as we had a strong expectation that a recurrence to the first experiment, now that the safety-valve was established, would prove successful.

On the 3rd of May, a consultation was held with Mr. Lawrence and Mr. Stanley. They entirely concurred in the views of Mr. Aston Key and myself, and it was agreed that nothing more should be attempted until Mr. B. had sufficiently recovered from the effects of what had been already done, to admit of his being again inverted on the movable platform.

A probe, or director, was occasionally introduced into the wound of the trachea, with a view to keep it in an open state; and on the 13th of May, the patient having been placed on the platform, and brought into the same position as formerly, the back was struck with the hand; two or three efforts to cough followed, and presently he felt the coin quit the bronchus, striking almost immediately afterwards against the incisor teeth of the upper jaw, and then dropping out of the mouth; a small quantity of blood, drawn into the trachea from the granulations of the external

wound, being ejected at the same time. No spasm took place in the muscles of the glottis, nor was there any of that inconvenience and distress which had caused no small degree of alarm on the former occasion.

It is unnecessary to describe the progress of the case afterwards. On the 20th of May, Mr. B. had sufficiently recovered to be able to go for change of air into the country, and when I saw him, about a fortnight afterwards, the wound of the neck was nearly healed.

For the early part of this history, I have availed myself of the notes of my friend Dr. Seth Thompson, who is nearly related to the patient, and to whom, also, I feel deeply indebted for the kind and zealous assistance which he afforded us during the whole progress of the case.

The different results which foreign bodies produce when admitted into the trachea, may be referred chiefly to the differences of their size, weight, and figure. If it be of large dimensions, the foreign body will be lodged, and probably impacted, in the trachea itself, causing, in the first instance, more or less obstruction to the respiration, which becomes aggravated afterwards by the too abundant secretion of mucus from the lining membrane. If it be of small size, it will descend to the lower part of one bronchus (generally the right) or even into one of the subdivisions of it, of course obstructing the respiration in a less degree. If it be of light weight and of moderate size, having no great irregularity of figure, on every fit of coughing it will be made to ascend to the glottis, threatening, and probably at last inducing, suffocation. If it be more ponderous, it will not ascend in the act of coughing, and the inconvenience which it causes, and the immediate danger, will in one respect be less. In the case which I have just related, the symptoms described by the patient led all those who were consulted to believe that the foreign body lay in the right bron-

chus; and this opinion derived confirmation from some experiments made formerly by Mr. Aston Key, and lately repeated by myself and others, in which it was ascertained, that a coin of the size of a sixpence or half-sovereign, if dropped into the trachea of the dead body, almost invariably fell, by its own weight, into this part of the air-passages. It was evident that the weight of the half-sovereign rendered it nearly stationary in the ordinary position of the body; and to this circumstance may mainly be attributed the comparatively trifling inconvenience which the patient suffered. But it is not to be supposed that the ultimate danger of the case, if the foreign body had been allowed to remain, would have been therefore less; and the records of surgery furnish abundant evidence that, under such circumstances, disease of the lungs sooner or later is induced, and that the death of the patient invariably ensues.

The narrow space which a half-sovereign would occupy in the bronchus, sufficiently explains the failure of the stethoscope as the means of diagnosis. It would appear, however, that even under more favourable circumstances, we cannot, in cases of this description rely on the information which is afforded to us by the use of this instrument. Mr. Hodgson of Birmingham has furnished me with the history of a case which fell under his observation, in which the berry of a plant called the bladder-senna, of the size of a large pea, had found its way into the trachea of a boy 6 years of age. On repeated examinations with the stethoscope, nothing unusual was observed in the state of the respiration; yet, on the seventh day after the occurrence of the accident, the child suddenly expired, and on inspecting the trachea afterwards, the berry was found lodged in it about an inch below the cricoid cartilage. Mr. Phillips, surgeon to the St. Marylebone Infirmary, and librarian of this Society, has informed me of another case, occurring in a little girl 2 years of age, in which a physician, much accustomed to the use of a stethoscope, had examined the chest with that instrument several times, and in the most careful manner, without detecting anything peculiar in the respiration; yet it was ascer-

tained after death, that a portion of the claw of a lobster was firmly fixed in the trachea, a little above the level of the upper margin of the sternum.

I have already stated, that in making the artificial opening into the trachea, we had two objects in view; and it has been shown, that in the attainment of one of these, our success was as great as our most sanguine desires could have led us to anticipate. Although, before the opening was made, the experiment of inverting the patient on the platform was productive of a most distressing and long-continued spasm of the muscles of the glottis, no such spasm occurred afterwards. The half-sovereign escaped through the aperture of the glottis, as easily as it would have done in the dead body; and the small quantity of blood which was ejected at the same time, and which had been manifestly furnished by the granulations of the external wound, sufficiently explains how this happened; as it is not to be supposed that blood could have been drawn into the trachea without the admission of air into it at the same instant. As connected with this part of the case, it may be well here to mention, that the distressing sensations arising from congestion in the vessels of the brain, while the head was in a depending position, were immediately and completely relieved by supporting the forehead with the hand, so as to keep the occiput in some degree inclined towards the back of the neck.

In the other object, for which the artificial opening was made, it must be confessed that we were wholly disappointed. In the dead body, with the assistance of proper forceps, there is no great difficulty in extracting a sixpence or a half-sovereign from the bronchus.

the bronchus, instead of the foreign body. Nor will these things appear remarkable to anyone who bears in mind, that the parts in which the forceps is to be used are not only out of sight, but at a considerable distance from the surface. Including the depth of the external wound, the instrument must be introduced to the distance of from four and a half to five inches, before it reaches the upper extremity of the bronchus, and in order that the whole of the bronchus should be explored, it must penetrate still one inch and a half further. But in the living person, there are difficulties of which no knowledge can be obtained from experiments on the dead body. We found that every attempt to use the forceps occasioned a convulsive action of the diaphragm and abdominal muscles, and violent coughing; and (contrary to the observations of M. Magendie on what happens in experiments on dogs) the result was nearly the same, whether the extremity of the instrument was directed upwards towards the glottis, or downwards towards the lungs. Dr. Williams has shown that the fibres of the whole of the bronchial tubes are endued with a high degree of contractility. The heart and its great vessels, the lungs, and the pulmonic plexus of the pneumo-gastric nerves, are immediately contiguous to the bronchi, and the phrenic nerves are only at a short distance on the forepart. How easy would it be for some unfortunate thrust of the forceps, for which, during a paroxysm of coughing, the hand of the surgeon could be in no wise responsible, to cause some such injury to these important organs, as would prove fatal to the patient! It was these considerations which made us cautious in the use of the forceps in the first instance, and ready to abandon it afterwards, in favour of a safer method of proceeding.

The foregoing observations are of course intended to apply only to cases like the present, in which the foreign body is lodged in the bronchus or in one of its subdivisions. When it is impacted in the trachea itself, there can be no doubt that it ought to be removed by the forceps, and that this may be safely and easily accomplished. But under all circumstances, we have a right to conclude, that an

artificial opening in the trachea must contribute to the security of the patient, and that the establishment of it at an early period is the first and most important duty of the surgeon.*

* Mr. B. died in 1859, I saw him at the time of his death, and had an opportunity of examining his body afterwards. The cause of death was quite unconnected with the accident related. The wound in the trachea was perfectly united, and there was no disease of the lungs.—C. H.

LOCAL NERVOUS AFFECTIONS.

LECTURE I.

THEORY OF LOCAL NERVOUS AFFECTIONS—VARIOUS CIRCUMSTANCES UNDER WHICH THEY EXIST—PRINCIPLES ON WHICH THE TREATMENT OF THEM SHOULD BE CONDUCTED.

A MIDDLE-AGED lady, who had been exposed during a considerable period of time to the operation of causes of great mental anxiety, complained of a constant and severe pain, which she referred to a spot, about three or four inches in diameter, in the situation of the false ribs of the left side. Besides this she was subject to fits, apparently connected with hysteria, and was otherwise in a very impaired state of health. Under these circumstances she died, and on examining the body after death particular attention was paid to the side to which the pain had been referred. No morbid appearances could be detected in it; there was neither inflammation, nor thickening, nor adhesion, nor any morbid change of structure, nor the slightest deviation of any kind from the natural condition of the part.

Now such a case as this is by no means uncommon. It is only one of many which might be adduced in proof of this proposition, namely, that the natural sensations of a part may be increased, diminished, or otherwise perverted, although no disease exists in it which our senses are able to detect either before or after death.

There are other cases which may be regarded as corresponding to those to which I have just alluded, except that the nerves of motion are affected instead of those of sensation. Here there is

an involuntary contraction or spasm of a particular set of muscles, or certain muscles lose their power of action altogether, and become paralytic; and yet, if an opportunity occurs of examining the parts after death the most minute dissection can demonstrate nothing in them different from what there would have been if the spasm or paralysis never had existed.

Nor are these facts of difficult explanation. Every part, to which a nervous filament can be traced, may be said to have its corresponding point in the brain or spinal marrow, and an impression made either at its origin, or anywhere in the course of the trunk of a nerve, will produce effects which are rendered manifest where the nerve terminates, at that extremity of it which is most distant from the brain.

These local nervous affections are of very frequent occurrence. In one shape or another you will meet with them at every turn of your future practice, and a knowledge of them is of the greatest importance, both to the physician and surgeon. Without it, you will be continually mistaking the real seat of a disease: your attention will be directed to a wrong object, and, following the symptoms, you will be in danger of overlooking the cause on which they depend. The investigation, however, is not unattended with difficulty, and it will often require all your professional sagacity and skill to trace the phenomena, which occur in these cases, to their true origin.

If you accidentally strike the inside of your elbow against a projecting body, the corner of a table for example, you feel a

yourselves when you are consulted in these cases, will be, whether there is any cause of irritation affecting the trunk of the nerve above, sufficient to account for the symptoms which are met with in the part to which its ultimate fibres are distributed.

A man was admitted into St. George's Hospital in the year 1808, complaining of a severe pain in the inside of his knee. The joint was carefully examined, but no marks of disease could be detected in it. In the thigh, however, there was an aneurism of the femoral artery, of the size of a small orange. This last disease had scarcely attracted the patient's notice. He said that he should be very well if it were not for the pain in the knee, and it was not until some trouble had been taken to explain to him the nature of his case, that he could be made to understand that the tumour was of any importance. Soon after the man's admission, Sir Everard Home (then Mr. Home) applied a ligature round the femoral artery, in the upper part of the thigh. On the instant of the artery being secured, the tumour ceased to pulsate, and the pain in the knee ceased also. Some untoward circumstances occurred, and the patient died about four or five days after the operation was performed. On inspecting the limb after death the aneurism was found reduced to one half of its former size; some branches of the anterior crural nerve, which passed over it, and which must have been kept on the stretch previous to the operation, were found to terminate in the part to which the pain had been referred, on the inside of the knee; and thus the cause of the pain was sufficiently explained. It was, in fact, a nervous pain, existing where there was no disease, in consequence of pressure on the nerves above.

A gentleman in the year 1816 began to suffer from a gnawing pain in the left leg, referred to the course of the peroneal nerve from the foot to the knee. The pain by degrees became very severe, occupying at the same time a larger portion of the limb. The limb itself presented no appearance of disease. The patient consulted various surgeons, myself among the number. The disease went by the name of neuralgia, but the cause of it could

not be discovered, and the remedies recommended were of no avail. After having lost sight of him for a considerable time, I was again sent for to see him in the year 1824. He was now dying with dropsy of the belly, and anasarca of the lower limbs. On examining the abdomen it was observed, as the fluid which it contained receded under the pressure of the hand, that there was a large solid tumour attached to the left side of the lumbar vertebræ, and extending into the pelvis. It was evident that this tumour must have pressed on the origin of the sciatic nerve, and thus it afforded a sufficient explanation of the pain which for so many years had been referred to some of its branches.

A case analogous to this is recorded by Dr. Denmark, in one of the volumes of the 'Medico-Chirurgical Transactions.' A sailor received a wound from a musket ball in the arm: the wound healed, but the patient complained of an agonising pain, beginning in the extremities of the thumb and fingers (except the little one), and extending up the fore-arm. His sufferings were such that he willingly submitted to the amputation of the limb, and the operation gave him complete relief. On dissecting the amputated limb, a small portion of lead, which seemed to have been detached from the ball when it had struck against the bone, was found imbedded in the fibres of the median nerve.

In each of these cases the cause of irritation was detected in the trunk of the nerve belonging to the part to which the symptoms were referred. But similar effects are produced where the actual seat of the disease is in that more essential part of the nervous system in which the nerve itself originates; that is, in the brain or spinal marrow. Thus caries of the dorsal vertebræ, irritating the spinal marrow, produces pains and muscular spasms of the lower limbs; and the same disease affecting the superior cervical vertebræ, produces corresponding symptoms in the upper limbs.

A gentleman complained of severe pains referred to one side of the abdomen. After having been fixed for some time in one situation, it attacked another. No disease could be detected in the part apparently affected, and the pains were therefore regarded

as nervous. It was observed at the same time that his powers of articulation were affected, and that he spoke in an indistinct and drawling manner. This seemed to indicate that there was some disease in the brain, and the suspicion was confirmed soon afterwards by the occurrence of epileptic fits, from which the patient continued to suffer during the few remaining years of his life.

I mention this case, because I believe that a particular example will serve to impress the fact which it illustrates on your minds better than a mere general observation, and not because there is anything in it in any way remarkable or singular. You will, indeed, when engaged in practice, find nothing more common than this; that a patient consults you, who labours under some disease in the brain, but in whom a particular symptom, referred perhaps to a distant part of the body, is so severe, or so distressing, that he regards this as the original disease; and it is only after a diligent cross-examination that you are enabled to detect the existence of those other symptoms which serve to explain the real nature of the case. In many of these cases the cause of irritation seems to operate always on the same part of the sensorium, and there is little or no variety in the local indications by which it is rendered manifest. At other times it has no determined seat; it may affect at first one portion of the brain, to which a certain function belongs, and then it may affect another portion, whose function is entirely different, and the symptoms vary accordingly.

A gentleman laboured under a most severe pain, referred to the left side of the face; to which those whom he consulted gave the name of tic douloureux. While under the influence of this pain he was suddenly seized with a pain in the calf of the left leg, having precisely the same character with that which he had before experienced in the face. When the pain in the leg attacked him, that in the face did not subside altogether, but it abated so much that he suffered little or no inconvenience from it. At the end of a few days, as the pain left the leg, it returned with its usual severity in the face.

A lady became affected with a spasmodic affection of the

sterno-cleido mastoideus muscle, producing what is commonly called a spasmodic wry neck. The symptom continued unabated for a year, and then suddenly left her; but as the spasm in the muscle ceased, she fell into a state of mental depression amounting to insanity; and in this she continued during the whole of the second year. At the end of this period she recovered of the disordered condition of her mind, and the spasm of the muscle returned, continuing from that period up to the time of my being consulted, three or four years afterwards. I was consulted by another lady, in whom a neuralgic affection of the spine alternated with insanity.

When a calculus passes along the ureter from the kidney into the bladder, it frequently occasions a severe pain in the testicle of the same side. The most probable explanation of this sympathetic affection of the testicle is as follows: many of the nerves of the testicle derive their origin from the renal plexus, which also supplies the kidney, and which is formed by branches of the great sympathetic nerve. The irritating cause, namely the calculus, operates in the first instance on the nerves of the kidney, through which its influence is transmitted to the renal plexus; and from thence it is, as it were, reflected to the nerves of the testicle.

The symptoms which occurred in the following case may be accounted for on the same principle. A gentleman laboured under a scrofulous disease of the hip, producing caries of the bones and suppuration within the joint. The following symptoms existed in addition to those which the same disease usually produces. The smallest motion of the thigh induced an attack of excruciating pain, amounting to agony, attended with violent spasmodic contraction of the muscles which move the thigh. The limb was jerked in a most remarkable manner for several minutes, and the volition of the patient had no control over these distressing and extraordinary movements. After some time a tumour began to present itself externally on the anterior part of the limb, raising the femoral artery which lay pulsating on its surface. Combined with the disease of the hip-joint there were scrofulous tubercles

and abscesses of the lungs, and of this last-mentioned disease he died, the attacks of pain and spasm having subsided for six or eight weeks before this event took place. Having the opportunity of doing so, I did not fail to examine the diseased hip and the parts connected with it with the greatest care. The bones composing it were soft, so that they were readily divided with a scalpel; the cancelli contained a yellow cheesy matter; and the cartilages had been destroyed by ulceration. The tumour was formed by an abscess situated among the muscles of the thigh on the anterior part below the hip-joint, but communicating with it. Two lymphatic glands, enlarged to the size of large walnuts, were found situated beneath the skin on the anterior part of the thigh, below the outer extremity of Poupart's ligament. It so happened that a considerable branch of the lumbar nerves lay over each of these enlarged glands, being thus kept stretched and tense in the same manner as the strings of a violin are stretched over the bridge of the instrument. These nerves had the same origin with those which supply the muscles on the anterior and inner part of the thigh, and the peculiar circumstances under which they were placed seem to afford a sufficient explanation of the peculiar symptoms under which the patient laboured. Nor is the view of the case different if we refer the symptoms to the pressure of the abscess, since this affected the nerves partially, whereas the convulsive action of the muscles was general, and the psoas magnus muscle, which was situated above the abscess, was not less liable to spasm than those which were situated below.

In cases similar to that which I have just mentioned, where nerves have a common origin, it is easy to suppose that an impression made upon one nerve should be communicated to those parts which are supplied by the other. But an impression made on one part of the body will often produce a nervous affection elsewhere at a distance from the original seat of the disease, and where no such obvious explanation of the fact presents itself. A disease in the liver produces a pain in the right shoulder; a disease in the heart produces a pain in the back.

A gentleman awoke in the middle of the night, labouring under a severe pain in one foot; at the same time that some other sensations, to which he was not unaccustomed, indicated the existence of an unusual quantity of acid in the stomach. To relieve the latter he swallowed a large dose of an alkaline medicine. Immediately on the acid in the stomach having been thus neutralised, the pain in the foot left him.

The late Dr. Wollaston was accustomed to relate the following history:—He ate some ice-cream after dinner, which his stomach seemed to be incapable of digesting. Some time afterwards when he had left the dinner-table to go to the drawing-room, he found himself lame from a violent pain in one ankle. Suddenly he became sick; the ice-cream was rejected from the stomach; and this was followed by an instantaneous relief of the pain in the foot.

A gentleman consulted me concerning a pain in one instep. The pain was severe, causing lameness, so that he walked with difficulty; but there was neither swelling, nor, except the pain, any mark of inflammation. I prescribed some remedies, which, however, were of no avail. One morning he called on me, still suffering from the pain in the foot, and so lame, that he could not get out of his carriage and walk into the house without the assistance of his servant. Now, however, he complained of another symptom; he had a difficulty of making water, and a purulent discharge from the urethra. He had laboured under a stricture of the urethra for many years, and had occasionally used bougies. Of late the stricture had caused more inconvenience than usual; but he had abstained from mentioning it, thinking that it would be better that he should (if possible) be relieved of the pain in the foot before any treatment was adopted on account of the stricture. Under these circumstances I introduced a bougie, which penetrated the stricture and entered the bladder. Immediately on the bougie having been used, the pain in the foot abated; and in less than a quarter of an hour he left the house free from pain, and walking without the slightest difficulty. This happened some years ago, but I have seen the patient at intervals ever since; and,

from a most careful observation of his case, he and I are both satisfied that the pain in the foot is connected with the disease in the urethra, and we have never found anything to relieve it except the introduction of the bougie.

A lady consulted me concerning a pain to which she had been for some time subject, beginning in the left ankle, and extending along the instep towards the little toe, and also into the sole of the foot. The pain was described as being very severe. It was unattended by swelling or redness of the skin, but the foot was tender. She laboured also under internal piles, which protruded when she was at the water-closet, at the same time that she lost from them sometimes a large and sometimes a smaller quantity of blood. On a more particular inquiry, I learned that she was free from pain in the foot in the morning; that the pain attacked her as soon as the first evacuation of the bowels had occasioned a protrusion of the piles; that it was especially induced by an evacuation of hard fæces; and that if she passed a day without any evacuation at all the pain in the foot never troubled her. Having taken all these facts into consideration, I prescribed for her the daily use of a lavement of cold water; that she should take the Ward's paste (*confectio piperis composita*) three times daily, and some lenitive electuary at bedtime. After having persevered in this plan for the space of six weeks, she called on me again. The piles had now ceased to bleed, and in other respects gave her scarcely any inconvenience. The pain in the foot had entirely left her. She observed that, in proportion as the symptoms produced by the piles had abated, the pain in the foot had abated also.

Now in such cases as these, you will at once perceive that there is no direct communication between the nerves of the parts affected that will afford a reasonable explanation of the occurrence of the sympathetic pain; and you will naturally inquire, how then is the sympathetic pain produced? To this question I would answer that in all probability it is in the brain itself that the communication is made, the impression being first transmitted to the sensorium, and from thence reflected to the nerves of the part which is

secondarily affected. If you dissect the brain according to Reil's method, having first hardened it by maceration in alcohol, you will find it splitting into fibres, passing in various directions, many of which may be demonstrated as connecting even the most distant convolutions of the cerebrum with each other: and if, with the limited knowledge which we at present possess, we venture to speculate on this obscure but interesting subject, we may easily be led to suppose that an impression on one part of the body should, by means of these communicating fibres, produce a disordered sensation in another part. It is not more improbable that this should happen than it is that the whole fabric of the nervous system should sympathise with an affection of a particular nerve, as is the case in traumatic tetanus, and on many other occasions of which the experience of surgeons will furnish numerous instances. I shall mention here one remarkable example of the kind which fell under my observation. An officer in the army received a wound (in action) from a musket-ball in the leg. The wound healed, but the ball remained lodged in the flesh, in some deep-seated situation where it could not be felt externally, and giving the patient no inconvenience. After some time the ball changed its place, so that it became perceptible to the touch; but in its new position it occasioned symptoms such as had never existed previously. There were convulsive twitches of the muscles of the limb, occurring at irregular periods, and sometimes followed by a fit, in which there were general convulsions, as in epilepsy. At this time (if I may judge from the patient's own account) the ball might have been readily extracted. Unfortunately the opportunity was

As these nervous affections may occur under such different circumstances, and may arise from such different causes, you will not be surprised to find that they assume a great variety of characters, so that it is impossible for me to do more than give you a general notion of what you will observe respecting them in the course of your professional practice; your own experience will enable you hereafter to supply the deficiencies of my description.

One remarkable feature of these diseases, whether they present themselves in the form of nervous pains or muscular spasms, is that they seem to be suspended during sleep. A patient suffering from the pains of tic douloureux in the face may, for a time, be prevented falling asleep, but if once asleep, his sleep is likely to be sound and uninterrupted for many hours. In like manner, when a patient is affected with spasmodic wry-neck, the muscle which is the seat of the spasm, probably the sterno-cleido mastoideus, becomes relaxed, and remains so while sleep continues, perhaps during the whole night. I do not assert that there are absolutely no exceptions to this rule, but I am much mistaken if the exceptions are not comparatively rare. Even during his waking hours, the sufferings of the patient are seldom constant. Nervous pains especially are intermissions, occurring in paroxysms, and then either subsiding altogether, or becoming very much abated. The time of such irregular intermissions varies from a few minutes to several hours, or even to several days. The patient then says that the pain comes on by spasms, and even medical men are apt to hold the same language. This, however, is not a very correct application of the term spasm. Spasm means contraction, and the use of it ought to be restricted to involuntary contractions of the muscles. In applying it to nervous pains as well as to muscular contractions, you confound together symptoms which, although they may arise from the same causes, are in themselves dissimilar, and you lead yourselves and others into error. Even where there is no absolute intermission, the intensity of the symptoms varies at different times, according to the state of the general health, the state of mind, and various other circumstances.

Nervous pains vary not only in degree but in kind. They are sometimes described as dull and wearying, at other times, and more frequently, as sharp, darting, or stabbing. A gentleman, who laboured under no other symptoms of disease, lost the sense of touch in one arm, and fore-arm and hand, so that the whole limb was benumbed, and, in the place of the natural sensations, experienced a sense of heat and burning, recurring at irregular intervals. Nervous pains may, in the first instance, be readily distinguished from those produced by inflammation by the absence of throbbing, by their not being increased by pressure, by there being no evident turgescence of the small vessels. But there is more difficulty in the diagnosis afterwards. As the commonest event may prove a source of annoyance to an irritable mind, so will nerves, which have been kept for some time in a state of irritation, transmit every impression that is made on them to the brain, with a disagreeable or painful sensation superadded to it; in other words, the part affected will be tender to the touch. And more than this: the tenderness may be followed by increased vascularity; by a slight degree of swelling; by actual inflammation. I do not mean to assert that any very active inflammation will be established, such as will end in suppuration and abscess, or ulcer; it will be moderate in degree, but it will be inflammation nevertheless, and marked by the usual symptoms. In a patient who had laboured for some time under pain in the testicle, depending on a calculus passing down the ureter into the bladder, the testicle became tender and considerably swollen. In a gentleman, who suffered for a great length of time from what was regarded as a most severe *tic douloureux* in the face, at first the parts to which the pain was referred retained their natural appearance, but ultimately they became swollen from an effusion of serum into the cellular texture, and so exquisitely tender that they would not bear the slightest touch.

I have said that nervous pains are subject to irregular intermissions. But in some instances the intermissions are regular, and the returns of the pain are periodical, like those of an ague, or

intermitting fever. I have known such intermitting and periodical nervous pains to alternate with ague. In fact, the two diseases depend on the same state of the general system; and quinine, or arsenic, which would cure the intermitting fever, will also cure the intermitting pain. Here the character which the pain assumes, leads to an important rule of practice; but in other cases, as far as my own experience has yet gone, it teaches us but little as to the origin of the disease, or the remedies by which it is to be cured. What I am now about to mention renders it probable that the kind of pain depends (at the least) as much on the particular structure of the part to which it is referred, as on the paticular cause which produces it. It has been stated by Sir Henry Halford that the tic douloureux in the face arises from the irritation of the nerves, occasioned by a portion of dead or carious bone, and I have no doubt that it is so in some instances. I have seen one, if not two cases, which confirm Sir Henry Halford's observation. But I also can entertain no doubt that it may arise from other causes. In one case, which I saw with Mr. Green and Mr. Freeman, the existence of epileptic fits, a ptosis of one eyelid, and some other symptoms, led us to believe that the pain in the face was the consequence of some disease in the brain. The patient died and the appearances on dissection afforded ample proof of the correctness of the opinion which we had been led to form during the patient's lifetime. In other instances it appears to be merely the consequence of a disordered condition of the digestive organs. But I am not aware that in these different cases there is any essential difference in the symptoms of the disease, or that it is possible for us, judging merely from the kind of pain, to pronounce that it arises from this or that cause, or that it is to be cured by this or that remedy.

Although there is no part of the body which may not, at one time or another, be the seat of these nervous affections, it would appear that some parts are more liable to them than others. They are met with less frequently in the viscera, which are supplied by the great sympathetic nerves, than in other parts. Nervous pains

are more severe, and perhaps, on the whole, more common, in those parts which receive their nerves from the fifth pair, as the face, the eye, the tongue, than in any other individual part, Muscular spasms are common in the muscles of the neck, especially in the sterno-cleido-mastoideus. I am inclined to believe, also, that they occur more frequently in the upper limb than in the lower. It is not uncommon to see one hand and arm in a state of constant tremulous motion, there being no other indication of disease. I have seen several cases in which a muscular spasm of the upper limb has shown itself in the following manner. The patient experiences no inconvenience from it until he uses the limb; for example until he sits down to write. Then, when he has gone so far as to have written a few letters, some of the muscles act involuntarily, and jerk the hand in a direction contrary to that which was intended; so that instead of completing the word which was begun, the pen makes a long scratch on the paper.

A lady complained of pain in the head, and her mouth was drawn to one side, and hence she was supposed to suffer from paralysis of the muscles of one side of the face. However, when I was consulted respecting her I observed that there were nearly constant twitches of the cheek and eyelids on that side to which the mouth was drawn; and on more minute examination I was satisfied that the distortion of the mouth arose not from the muscles on one side of the face being paralytic but from those on the opposite side being in a state of spasm. The case precisely resembled that of a patient with spasmodic wry-neck, except that the disease influenced a different set of muscles, namely, those supplied by the facial nerve or the portia dura of the seventh pair.

Perhaps there are no muscles in the body which are, on the whole, more liable to have their actions deranged under the influence of nervous disorders than those of the pharynx and œsophagus. In not a few of those cases which have been confounded together under the general appellation of stricture of the œsophagus the disease is either a spasmodic, or a partial paralytic,

affection of these parts, and the patient is to be cured, not by the introduction of bougies into the œsophagus, but by other means.

A lady consulted me concerning symptoms which were ascribed to a stricture of the œsophagus. She was unable to swallow the smallest morsel of solid food, so that she was compelled to subsist entirely on liquids, and even these she swallowed with great difficulty. These symptoms had been coming on for upwards of three years. I introduced a full-sized œsophagus bougie, which entered the stomach without meeting the slightest impediment. From this and other circumstances, I was led to conclude that the difficulty of deglutition was merely a symptom of some other disease. The lady's face was bleached, as if she had suffered from repeated attacks of hæmorrhage, and her feet were in some degree œdematous. On inquiry I found that she had long laboured under internal piles from which had taken place repeated discharges of blood. To this last disease then I directed my chief attention, prescribing a cold lavement to be injected every morning; and at the same time a solution of the sulphate of iron and sulphate of quinine to be taken three times daily by the mouth. When this plan had been persevered in for three weeks the piles were much relieved; they no longer protruded externally; there had been no recurrence of hæmorrhage; her cheeks were less pale; and she swallowed with comparative facility. At the end of six weeks more the piles occasioned very little inconvenience; she had lost no more blood; her general health was much improved; and there was so little difficulty of deglutition that I had no hesitation in recommending that, after her return to the country, she should swallow a bolus of Ward's paste three times daily, with a view to the cure of the hæmorrhoidal disease.

The pathological history of these local nervous affections constitutes in itself a most curious and interesting object of research; but it has another, and still stronger claim on your attention. Your patient wishes to be cured; he has of course no other reason for consulting you. Now, you may supply yourselves with a list of

what are called nervous remedies; prescribing, for example, the carbonate of iron first, changing this for the extract of belladonna, and that for something else; trusting that accident will at last enable you to hit on the right expedient; but you will do little good by the adoption of such a loose and empirical method of practice. If you would cure your patient, you must study each individual case that comes before you pathologically; endeavour to trace the symptoms to their true origin; and if you can succeed in doing so, you will, in many instances, learn at the same time in what manner a cure is to be effected; while in others, in which the disease does not admit of a cure, you will learn this also: you will be enabled to avoid tormenting your patient with useless remedies; and at any rate you will be satisfied you can do as much for him as your neighbours.

It is not to be supposed that in these cases any permanent benefit can arise from applications made to the part to which the symptoms are referred, the cause on which they depend being elsewhere; and the first thing that you have to attend to in the treatment is, that you do not fall into the error of regarding the symptoms as constituting the original disease. A patient applies to you complaining of a pain in the testicle; but the testicle appears to have its natural structure, and (except the pain) bears no marks of inflammation. You inquire further, and find that the pain is not constant; that it is especially induced by exercise, and that it subsides when the patient is in the horizontal posture. Examine the groin after he has taken a long walk, and you will perhaps find an incipient hernia, a small portion of bowel just attempting to protrude through the abdominal ring. You apply a truss, which supports the hernia, and cures the pain in the testicle. It you had been careless in your investigation of the case, and had applied leeches and lotions to the testicle, you would, to say the least, have plagued your patient to no purpose. Another person applies to you concerning a spasmodic wry-neck. If you at once conclude that the disease is where it shows itself, and divide the tendon of the sterno-cleido-mastoideus muscle, what is the consequence? The patient undergoes a certain quan-

tity of pain in the operation and to no purpose; for before the wound is completely cicatrised, the divided tendon has again become fixed by adhesion to the neighbouring textures, and the contraction of the muscle, and the twisting of the neck, are as bad as ever. I shall relate a case in which a patient underwent a severe and painful operation to no purpose, in consequence of such a want of discrimination on the part of the surgeon. A sailor had received a severe wound in the ham, I believe, from a musket ball. The wound healed, but not until after a considerable time, and the patient was left with a contracted leg, and suffering from a most agonising pain in the foot. This state of things having existed for a considerable time, and no benefit having been derived from any of the remedies employed, the poor fellow wished to lose the foot. The surgeon, under whose care he was, therefore amputated the leg. But, unfortunately, he amputated it, not above the knee and above the injury of the nerve, but below the knee and below the injury. I scarcely need tell you the result. The pain continued as severe as ever, and it was not relieved until amputation had been performed a second time higher up in the limb.

It is, however, reasonable to conclude, that few among you will be guilty of a mistake so palpable as this. But in many instances, as I have already expressed to you, the diagnosis is really difficult, and it will require a very minute observation, and much exercise of judgment, for you to understand the real nature of the case, so as to be enabled to determine where the primary disease is situated, and in what it consists. You must take into the account not only the present circumstances, but the former history; and your observations instead of being limited to the particular symptoms concerning which you are consulted must extend to the state of the animal functions generally; and where more light is wanted, you must be satisfied to wait and watch the further progress of the disease, and the effects produced on it by the remedies employed.

If the original disease operates immediately on the nerves of

the affected part, producing in it pain, or muscular spasm or paralysis, you will have first to consider how far it is within the reach of topical remedies. If a tumour presses on a nerve, or if some foreign body, as a musket ball, or a piece of dead bone, irritates its surface, or is entangled in its substance, perhaps the tumour or the foreign body may be removed by a surgical operation, or the tumour may be reduced by other means. If this cannot be accomplished, or if the nerve itself be altered in structure, either from disease or injury, it will become a matter for consideration, whether the limb should be amputated, or whether the nerve should be divided. It is only under these circumstances that any advantage can be expected to arise from the division of the nerve. In ordinary cases of neuralgia, where the disease on which it depends is in the brain or in some other distant part of the body, or where it is connected with some derangement of the general health, it is evident that such an operation cannot be recommended on any sound principle, and it need be a matter of no surprise that where it is performed it should so generally fail. Where nothing better can be done, and a cure is not within your reach, a paliative treatment may be productive of some advantage, and you may endeavour to mitigate the patient's sufferings by the use of the local vapour bath, or by the application of the opium, or hemlock, or, what is still better, the belladonna plaster.

In other cases the success of your practice must mainly depend on these circumstances: whether you are able to discover the primary seat of the disease, and whether, if it be discovered, it is of such a nature as to be under the influence of remedies. If you refer to what I have said in former parts of the present lecture, you will find that I have anticipated much of what belongs to this part of our enquiries. I shall not trouble you by needless repetitions. There are some points, however, on which I feel it my duty to make some additional remarks.

The mucous membrane of the stomach and intestines presents a very extended surface, on which a multitude of nervous filaments are distributed, maintaining an extensive sympathy between these

organs and the rest of the system. This membrane is subject to various causes of irritation, to which nervous affections showing themselves even in distant parts of the body, may not unfrequently be traced. Hence it is that these diseases are in some instances relieved, or cured, by an adherence to a well-regulated diet, by the exhibition of purgatives, of what are called alterative medicines, and of others which tend to improve the disordered secretions of the stomach and liver.

In a great number of instances nervous pains are manifestly connected with a disposition to gout, and the colchicum, combined with other remedies, will contribute to their cure.

I have already adverted to cases in which various pains assume an intermitting and periodical character, having a manifest relation to cases of intermitting fever. According to my experience there is no part of the body in which such pains may not occur, and when they occur daily, or on the alternate days, they are always relieved by the exhibition of the sulphate of quinine, or of the cinchona, combined with arsenic. But large doses of these medicines are sometimes required. A respectable medical practitioner consulted me, believing that he laboured under a disease of the spine. He complained of pain, which he referred to the inferior dorsal vertebræ, and which was so severe that he could, as he said, scarcely endure it. On inquiry, I learned that the pain attacked him always at a particular period of the night; that it lasted for a certain number of hours, and that he was free from pain, or nearly so, in the intervals. I recommended that he should take the sulphate of quinine procured at Apothecaries' Hall. He took as much as fifteen or sixteen grains daily without any decided amendment; but I was so satisfied of the efficacy of the remedy in such a case, that I advised him to increase the dose still further. At last he took half a drachm of the sulphate of quinine daily, and this effected his cure.

Nervous affections of the same kind not unfrequently show themselves in other ways. Still they are cured by the same remedies. It would be an endless task for me to describe all the

varieties of this disease which you will meet with in practice; and I shall content myself with furnishing the following examples.

In my lecture on the diseases of the urinary organs I have noticed the case of a gentleman, who had long laboured under a stricture of the urethra; but from which, introducing a bougie occasionally for himself, he suffered little. At last he became affected with a periodical retention of the urine, recurring at a certain hour every night. The retention continued for some hours, and then subsided. The introduction of the catheter gave him relief at the time by emptying the bladder, but it did not remove the spasm, and if the urine was secreted rapidly afterwards, a second introduction of it was required. After this state of things had continued for some time, I prescribed for him two grains of the sulphate of quinine to be taken every six hours. On the first night after he began to take it the retention recurred, but he had no attack afterwards.

A lady about 60 years of age complained of a most distressing sensation of thirst, beginning about ten o'clock in the forenoon, continuing for five hours, and recurring daily. A slight degree of chilliness preceded the attack; and while it lasted, although the sense of thirst was such as to produce absolute misery, there was no perceptible dryness of the mouth and fauces, and the secretion of urine was natural. These symptoms had existed for several weeks. The patient appeared to labour under no other disease; she had, however, began to lose flesh, and her complexion was sallow. The same symptoms had attacked her four years ago. At that time they continued for six months, leaving her thin and debilitated

pain in the face subsided; but immediately afterwards she began to experience a pain in one foot. This pain recurred in the early part of every evening. After a short time it was followed by a redness of the skin, and tumefaction of the subjacent parts near the bases of the toes. These marks of inflammation continued to increase for some hours, and then subsided, leaving the foot of its natural appearance and free from pain. This state of things, at the time of my being consulted, had existed with little variation for several months. She was advised to take the sulphate of quinine. On the following evening the attack was less severe than formerly, and in the course of three or four days the symptoms had entirely subsided.

In this case the inflammation of the foot was manifestly the consequence of the intermitting neuralgia. In that which follows, the inflammation of the leg formed the most prominent feature of the disease; yet from its resemblance to the last we can scarcely doubt that it ought to be considered as belonging to the class of nervous affections.

A lady laboured under an inflammation of her leg. The whole leg was swollen from the toes to the knee, the skin being red, painful and tender. These symptoms had existed for several weeks; the usual remedies had been employed, and no amendment had taken place; yet the inflammation did not proceed further, and there were no signs of suppuration. At last I observed that the symptoms varied considerably; that sometimes the redness, pain, and swelling had nearly subsided, that at other times they were as strongly marked as ever; and that these variations always took place on the alternate days. She was now directed to take the sulphate of quinine. The effect was immediate, and a few days completed the cure.

In those cases in which the local nervous affection depends on an organic disease of the brain, or spinal marrow, it is evident that the patient has no chance of actual cure. Other nervous symptoms show themselves in succession, such as a stumbling walk, a drawling speech, epileptic fits, derangement of the intellect, and at last a

stroke of apoplexy occurs as the immediate prelude of death. But here months or years may elapse before the disease reaches its fatal termination; and in the meantime you attain an important end, if you can relieve the local symptoms. Now where these appear in the form of muscular spasms or paralysis, according to my experience, remedies are of little avail. The spasms may subside spontaneously, but they are not to be relieved by art. It is different, however, with respect to nervous pains; and for these, local applications of hemlock or belladonna, stimulating liniments combined with laudanum, and even blisters, may be employed with advantage, removing the pain, perhaps for a time, perhaps permanently, although the disease on which the pain depends is slowly but progressively advancing.

Another very extensive class of local nervous affections remain to be investigated. To these I shall refer your attention in the next lecture.

LECTURE II.

VARIOUS FORMS OF LOCAL HYSTERICAL AFFECTIONS.

When I was formerly engaged in the study of the diseases of the joints, having, at the period, to which I refer, few opportunities of investigating the subject except in my hospital practice, I occasionally met with cases, in which a particular joint was affected with pain, and a great degree of morbid sensibility, attended occasionally with some degree of tumefaction of the soft parts, although the characteristic symptoms of the ordinary diseases to which these organs are liable were wanting, and the usual consequences of abscess and destruction of the joint did not ensue. For a long time these cases occasioned me great perplexity, and it was not until after I had published the first edition of my 'Treatise on the Diseases of the Joints,' that the occurrence of the case, which I am about to describe, first led me to suspect the real origin of the symptoms which I had not comprehended formerly.

I was consulted concerning a young lady who complained of severe pain and a morbid tenderness of the knee, in the first instance attended with no perceptible enlargement of the joint. The remedies which, with such knowledge as I then possessed, I was led to recommend, gave her no relief; and after some time a slight degree of tumefaction took place, depending, as it seemed, either, on a fullness of the small vessels, or on an effusion of lymph or serum into the subcutaneous cellular texture. She had been in this state for a considerable time, when she was seized with a succession of violent paroxysms of hysteria, which terminated in an hysterical affection of the brain; so that she lay in a

state approaching to that of coma, with dilatation of the pupils of the eyes. She was now attended by the late Dr. Babington and myself. I do not undertake to say whether the disease yielded to the remedies employed, or reached its natural termination; but, from one or other of these causes, the patient recovered of the last-mentioned symptoms, and from that time she never complained of her knee.

Not long afterwards, another young lady was brought to me, labouring under what had been supposed to be a scrofulous disease of the wrist. The resemblance of this case to that of the last-mentioned patient led me to doubt the correctness of this opinion, and the results proved my doubts to be not without foundation. She also was seized with a succession of violent paroxysms of hysteria; and when after the lapse of many days, she had recovered from them, the disease of the wrist had vanished.

It seemed impossible to doubt that in each of these cases there was some connection between the local symptoms and the constitutional disease under which the patient laboured; and a great number of other cases, which fell under my observation afterwards, confirmed me in the opinion; that where there is that state of the general system, whatever it may be, which produces the phenomena of hysteria, it is not uncommon for a particular joint to be affected with pain and morbid sensibility, such as may lead a superficial observer to believe that it is the seat of some serious local disease, although no such disease in reality exists.

In the second and subsequent editions of my 'Treatise on the Diseases of Joints,' I have given some account of these local hysterical affections. I trust that what I have there stated may have been not wholly unacceptable to those who are engaged in the practice of our art; but the subject is one of great interest both to the scientific pathologist and to the practical surgeon, and believing that I can furnish you with some information respecting it, beyond that which is to be found in these publications, I am led to call your attention to it on the present occasion.

I have already mentioned, that when my opportunities of

studying these diseases were limited to what I saw in the wards of the hospital, these affections of the joints fell occasionally under my observation. Since I have been engaged in a large private practice, they have presented themselves, I may say, without exaggeration, almost daily. This is easily explained, '*Fœminarum enim paucissimæ*,' says the sagacious and observing Sydenham, speaking of hysteria, '*ab omni horum adfectuum specie prorsus liberæ sunt, si istas excipias quæ laboribus adsuetæ duram vitam trahunt.*' The liability to hysteria is, in fact, among females, one of the severest penalties of high civilisation. It is among those who enjoy what are supposed to be the advantages of affluence and an easy life, that we are to look for cases of this description, not among those who, fulfilling the edict of the Deity, 'eat their bread in the sweat of their face.' I do not hesitate to declare that among the higher classes of society, at least four-fifths of the female patients who are commonly supposed to labour under diseases of the joints, labour under hysteria, and nothing else.

Frequently the symptoms are referred to the hip-joint. They then have a considerable resemblance to those of diseases in the bones or cartilages, yet a minute examination of the case will rarely leave you in doubt as to your diagnosis.

There is pain in the hip and knee, which is aggravated by pressure and the motion of the limb, and the patient often lies fixed in one position on the bed or sofa. You will say, 'are not these indications of a diseased hip-joint?' But observe further. The pain is not in general fixed in any one part; it belongs to the whole limb. The patient winces, and sometimes screams, when you make pressure on the hip, but she does the same if you make pressure on the ilium, or on the side as high as the false ribs, or on the thigh or even on the leg, as low as the ankle; and everywhere the morbid sensibility is chiefly in the integuments. If you pinch the skin, lifting it at the same time off the subjacent parts, the patient complains more than when you forcibly squeeze the head of the thigh-bone into the socket of the acetabulum. As her attention is more directed to the examination, so the pain which she suffers from it, is aggravated; and if her mind be

occupied in conversation, she will scarcely complain of that, which would have occasioned torture otherwise. Then there is no wasting of the *glutæi* muscles, and no flattened appearance of the nates; and the aspect of the patient is different from that which you would expect to find if the bones and cartilages of a joint were in a state of ulceration. Neither are there those peculiar and painful startings of the limb at night, attended often with frightful dreams, which mark the existence of this last disease. The pain will sometimes prevent the patient falling asleep, but, if once asleep, she sleeps soundly for many successive hours; and this state of things may continue for weeks, or months, or even for years, without leading to abscess, or any further ill consequences. There may be a suspicion of abscess (I have known this in a great number of instances) but the suspicion is never realised. Sometimes there is a general tumefaction of the thigh and nates, the consequence either of a turgid state of the small vessels, or of an effusion into the cellular texture (I suppose of the former, as the parts do not *pit* or remain indented after pressure); but this is entirely different from the swelling of an abscess. In a few rare instances there is a more defined and circumscribed swelling, but still it is altogether different from that of abscess. There is no perceptible fluctuation, and I can compare it to nothing better than a wheal of urticaria of unusual magnitude. A careful examination will always enable you to distinguish these swellings from abscess. For the satisfaction of others, I have sometimes made a puncture with a grooved needle, or some other convenient instrument, the introduction of which would have detected matter, if matter had existed.

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may be led to believe that there is an actual dislocation of the hip; and, indeed, it requires a careful examination to enable the surgeon to understand that all this strange distortion is but the result of the predominant action of certain muscles, and of a long-continued indulgence in an unnatural position.

When the symptoms are referred to the knee, they bear a near resemblance to those which have been just described. There is great tenderness of the joint; but the patient suffers more from pinching the skin than from pressure, and the morbid sensibility extends for some distance up the thigh, and down the leg, perhaps as low as the foot and ankle. She suffers less from an examination when the attention is fixed on other matters than when it is directed to the affected parts; and she does not usually complain when pressure is made on the heel, so as to press the articulating surface of the tibia against that of the femur, provided that care be taken at the same time to produce no motion of the joint. In most instances the leg is kept extended on the thigh, whereas, in cases of real disease in the knee-joint, it is usually a little bent. The symptoms may continue in this case, also, without any material alteration, for an indefinite time; for weeks, or months, even for years the joint retaining its natural size and figure; but occasionally a slight degree of tumefaction is observable, especially on the anterior part, over, and on each side of, the ligament of the patella. This tumefaction is not to be confounded with a general enlargement of the joint, by which surgeons are frequently perplexed and misled, the result not of the disease, but of the remedies employed. I refer to cases which have been misunderstood and mismanaged by the application of blisters, issues, and a succession of various counter-irritants.

What I have now stated may be sufficient to enable you to understand the nature of the symptoms which you may expect to find where these hysterical affections occur in the other joints of the extremities. The following observations are equally applicable to all these cases, and while they are necessary to complete the history, will be found of use in enabling you to form a correct diagnosis.

The patients thus affected are, for the most part, not much above the age of puberty.

In many instances they labour under some irregularity with respect to menstruation: while in others this function is in no respect different from what it is under circumstances of perfect health.

Those who labour under habitual coldness of the hands, have a weak small pulse, and afford other indications of a feeble circulation, are more liable than others to suffer in this manner; yet occasionally we find these symptoms existing in combination with a florid countenance and a sufficient development of animal heat.

In some instances the joint to which the symptoms are referred, and even the whole limb, is affected with a remarkable alternation of heat and cold. Thus in the morning the limb may be cold, and of a pale or purple colour, as if there were scarcely any circulation of blood in it; while towards the afternoon it becomes warm, and in the evening is actually hot to the touch, with the vessels turgid and the skin shining. This state of things is often a source of serious alarm to the patient, and even to the medical attendant, but I never knew it to be followed by any ill consequences.

The majority of the patients thus affected exhibit other proofs of their liability to hysteria. Sometimes they have been subject to the usual paroxysms of hysteria, which have ceased on the local symptoms showing themselves; and a recurrence of the former has been followed by an abatement of the latter, or by complete recovery from them.

Not unfrequently the origin of these symptoms may be traced to a severe illness, which has left the patient in a state of great physical exhaustion; at other times they are as clearly to be attributed to some moral cause having a depressing influence on the constitution. In like manner the agency of moral causes, especially of those which compel the patient to make much physical exertion, often leads to her recovery. But we must not be led by this last-mentioned circumstance to adopt the harsh conclusion, that these symptoms exist only in those who are of a fanciful and

wayward disposition. Young women of the highest moral qualities, and of the strongest understanding, are not exempt from these maladies; but it must at the same time be acknowledged that a cure is more easily attained in them than it is in others.

Although there are none of those painful and involuntary startings of the limbs which occur in combination with caries of the joints, spasmodic actions of the muscles of the limbs are not uncommon in the cases of which I am now speaking. In some instances convulsive motions of the limbs are produced by pinching, or even by lightly touching the integuments. These bear no very distant resemblance to the movements of chorea; and it is worthy of notice, that they do not occur if it can be managed, at the same time, that the attention of the patient should be otherwise directed. I have also known them to take place independently of any manifest exciting cause. In some cases, which have fallen under my observation, the limb was at irregular periods violently agitated, so as almost to throw the patient off her couch.

In these cases there is always a sense of weakness in the limb, which for obvious reasons becomes aggravated in proportion as the muscles have been for a longer time in a state of inaction. While the pain and morbid sensibility of the joint are gradually subsiding, this sense of weakness increases, until at last it is the predominant symptom. Under these circumstances the patient often says, 'I have no pain, but I cannot walk, because the limb is so weak.' Weakness of the muscles, however, is not the only circumstance which interferes with the speedy recovery of the use of the limb in these cases. The tunics of the small blood-vessels, when the limb has been long kept in the horizontal posture, seem to partake of the condition of the muscles; and when the foot is first put to the ground, the skin assumes, in consequence, a red colour, sometimes amounting to a purple hue, as dark as that which, when limited to a particular spot, is often the precursor of a vesication.

The symptoms which have been described for the most part come on gradually. In the majority of cases they subside gradually also; but sometimes it is otherwise, and they vanish all at once

without any evident cause. For example: in the year 1834 I was consulted respecting a young lady labouring under a well-marked hysterical affection, simulating disease of the hip joint. As she was not a resident in London, I had no opportunity of watching the progress of the case, but I have lately received the following account of it from Dr. Mortimer, the surgeon of Haslar Hospital: —Her symptoms had continued, nearly unaltered, for nearly two years, when one night, on turning herself in bed, she said that she had a feeling as if something had given way in her hip, and from that moment she was quite well.

Another young lady was brought to London for my opinion in October 1833. She also was supposed to labour under a disease of the hip-joint. After a careful examination of her case, I was satisfied that it was one of hysterical affection, and that there was no actual disease of the joint. I recommended her to leave her couch, to which she had been confined, and to take exercise, especially on horseback. Being a sensible and well disposed person, she followed this advice, in spite, I doubt not, of a good deal of inconvenience in the first instance. After the lapse of a year, I received from her father the following statement respecting her:—'In pursuance of your advice, she began to use the limb more freely, but with little alteration as to pain and lameness until about six weeks ago, when, by a fall of the donkey on which she was riding, she was thrown over the animal's head, standing on the foot of the lame limb, with her weight upon it. She felt immediately what she describes as a sudden snap, as if something near the joint had given way. This was attended with a violent acute pain, which, however, lasted only a short time. She was replaced on the donkey, and rode home, a distance of four miles. To her great surprise the former habitual pain of the limb had entirely discontinued, and there has been no return of it since. She was able to walk up and down stairs without difficulty or pain, and now walks a considerable distance, using the one leg as freely and as well as the other. Her general health is improving rapidly although she is still weak. There has been no hysterical fit since

the accident; in short, the cure has been complete.' However, the cure was not permanent. Three months afterwards the complaint recurred, having the same character as formerly, except that it was not now combined, as it had been in the previous attack, with other hysterical symptoms. She was at this time on the Continent, and I have not heard the result of the case.

I have hitherto described these cases as if the symptoms were peculiar to the female sex; but it is not so in reality; and I have known several (though by comparison certainly rare) instances of males being affected in the same manner. I employ the term hysteria because it is in common use, and because it would be inconvenient to change it for another; but the etymology of it is undoubtedly calculated to lead to a great misapprehension with respect to the pathology of that disease. It belongs not to the uterus, but to the nervous system; and there is no one who is much engaged either in medical or in surgical practice, who will not be able to bear testimony to the accuracy of Sydenham's observation on this subject:—'*Quinimmo non pauci ex iis viris qui vitam degentes solitariam, chartis solent impallescere eodem morbo tentantur.*'

Hysterical affections, in which the symptoms are referred to the spine, are of very frequent occurrence. Such cases are, in many instances, mistaken for those of ulceration of the intervertebral cartilages and bodies of the vertebræ; and in consequence of this unfortunate impression on the minds of the medical attendants, I have known not a few, but very numerous, instances of young ladies being condemned to the horizontal posture, and even to the torture of caustic issues and setons, for several successive years, in whom air and exercise, and cheerful occupations, would probably have produced a cure in the course of a few months.

In these cases the patient complains of pain and tenderness of the back, to which one or more of the following symptoms may be superadded, tending very much to mislead the medical or surgical attendant:—Pains in the limbs, especially in the lower limbs; a sense of constriction of the chest, involuntary spasms of

the muscles, sometimes induced by change of position, at other times recurring without any very evident cause; a sense of weakness in the lower limbs, so that they are scarcely capable of supporting the weight of the body; and even actual paralysis; difficulty of voiding the urine. When the patient first complains of pain in the back, it must be acknowledged that there is some difficulty in forming a positive diagnosis; but the difficulty vanishes afterwards, so that none but a superficial observer can have any doubt as to the real nature of the disease. The pain in the back is seldom confined to a single spot, but it extends to different regions of the spine, and it not unfrequently shifts its place from one part to another. The tenderness of the spine is peculiar. The morbid sensibility is chiefly in the skin, and the patient, for the most part, flinches more when the skin is even slightly pinched, than when pressure is made on the vertebræ themselves. The pain is, in the majority of cases, more severe than in those of real vertebral disease; and the spasms of the muscles have a near resemblance to those of chorea. Where there is paralysis, or a tendency to paralysis, it is quite different from what is observed in cases of pressure on the spinal cord or brain; and I may take this opportunity of observing, with respect to hysterical paralysis, generally, that it has this peculiarity: *it is not that the muscles are incapable of obeying the act of volition, but that the function of volition is not exercised.* The accuracy of this observation will, if I am not much mistaken, be acknowledged by all those who are at the pains of studying these cases with the attention which they so well deserve; and the importance of it in medical and surgical practice is sufficiently obvious. There are still other circumstances which may assist us in forming our judgment; such as the general aspect of the patient, and her condition in other respects; her time of life, the state of the menstruation; and especially the liability to the more common hysterical affection.

Patients with a weak pulse, and cold hands and feet, are, on the whole, more liable to suffer in this manner than other persons.

But this is almost a needless repetition. It would be sufficient for me to refer to what I have already stated in speaking of hysterical affections simulating diseases of the joints of the extremities.

I have frequently known surgeons to apply a hot sponge to the spine, believing that if the patient complained of pain on the application, this was a proof of the existence of caries. My own experience leads me to believe that a patient who labours under a nervous pain of the back will complain of the hot sponge even more than one in whom real disease exists. I mention this trifling matter, that you may avoid being misled by it in your diagnosis.

What I have already described are only a part of the local hysterical affections which fall under the observation of the surgeon, and an acquaintance with which is necessary, to enable him to practise his art with credit to himself, and advantage to the public.

Hysterical retention of urine is of such frequent occurrence, that any particular description of it would seem to be superfluous. An observation, which has been already made, is equally applicable to this as to other forms of hysterical paralysis. The muscles are not incapable of obeying the act of volition, but the volition itself is not exercised. So it is, at least, in the first instance; but if the patient has allowed the bladder to remain for a great length of time in a state of extreme distension, actual paralysis may ensue, and she may then strive in vain to empty the bladder, without the aid of the catheter. In these, and in other cases in which the bladder has been long extremely distended, the mucous membrane becomes affected with chronic inflammation, secreting the usual adhesive mucus; and even worse consequences may ensue than these. In a case to which I have had occasion to refer in my lectures on the diseases of the Urinary Organs, hysterical retention of urine having been for a long time neglected, at last forty ounces of urine were drawn off by the catheter. In the post-mortem examination, the bladder was found of a very large

size, of a dark and almost black colour: there were only slight vestiges of its natural structure left, the muscular fibres being very much wasted, and the internal membrane presenting the appearance of a very thin film, which was readily separated from the parts below. The dark colour of the bladder did not seem to arise from mortification, there being no fœtor, nor, with the exception of the black colour, any indication of it.

Females who labour under hysterical retention of urine, if left to themselves, usually recover in the course of a short space of time, sometimes almost suddenly; but if the catheter be employed, their recovery may be protracted for an indefinite period. We may lay it down as a general rule, that in these cases the catheter should not be had recourse to; and the only exceptions to it are in those extreme cases in which actual paralysis has taken place, and the bladder is likely to become diseased, if not artificially relieved.

Hysterical *aphonia*, or loss of voice, allowance being made for the different functions of the affected parts, corresponds very nearly to the hysterical retention of urine. It takes place suddenly, continues often for many months, even for one or two years; and then disappears as suddenly as it began. A patient thus affected may, when under the influence of strong moral excitement, find herself speaking in her natural voice, when, for some time before, she had spoken only in a whisper. Her recovery may be permanent, or she may relapse into her former condition. This symptom is not unfrequently met in the male sex, especially in those of the clerical profession, probably because they often lead very sedentary lives, and also because in their profession they are called upon to speak in public in a tone raised above the ordinary standard.

A tympanitic distension of the intestines is not an uncommon symptom in young women who are affected with hysteria; and, when existing to a great extent, is frequently mistaken for ovarian dropsy. The majority of cases in which the patient has been supposed to be cured of ovarian dropsy, by the agency of iodine and

other remedies, have been, I doubt not, of this description. Yet the diagnosis is not difficult. The absence of fluid is distinguished by the absence of fluctuation; and the sound produced by percussion sufficiently indicates the cause of the distension. When the tumour is of a large size, there is pain in the abdomen, and the respiration is rendered difficult in consequence of the impediment which exists to the descent of the diaphragm. If the uneasiness be such as to induce the practitioner to direct the use of the warm bath, and the tympanitic distension be great, the effect is remarkable. Instead of sinking in the bath, as under ordinary circumstances, the patient floats in the water. If an elastic gum tube be cautiously introduced, so as to reach the upper part of the rectum, and pressure be made on the surface of the abdomen, the air may, in some instances, be made to escape through the tube, until the abdomen is reduced almost to its natural dimensions; but it becomes re-accumulated in the course of a few hours. A stimulating injection, made with the *confectio rutæ*, will sometimes produce the same result.

Young women are subject to an affection of the breast, corresponding to the hysterical affections of the joints, and indicated by very similar symptoms. These cases have been noticed by Sir A. Cooper, in his observations on the Diseases of the Breast. The patient complains of pain in the breast, and shrinks on pressure being made with the fingers, or even on the skin being slightly pinched. Not unfrequently the examination of the part produces twitches and motions of the body, bearing no small resemblance to those of chorea; yet, if it can be dexterously managed, while the examination is being made, that the patient's attention should be otherwise engaged, not only these motions do not occur, but she may seem scarcely sensible of pain. The morbid sensibility is not confined to the breast, but extends to the axilla, and down the arm. No distinct tumour is perceptible in the breast, but when the disease has been of long continuance, the whole organ becomes slightly enlarged, probably in consequence of an increased determination of blood to the small vessels; yet there is no redness,

of the skin, and indeed the skin is even paler than natural, with a somewhat glossy appearance of its surface.

These cases are to be distinguished from those of a rare kind of irritable tumour of the breast of which a representation is to be found among the plates annexed to Sir Astley Cooper's work. I conceive that they ought also to be distinguished from those which may occur at any time of life, and in women who have no particular disposition to hysteria. In the cases to which I now allude, the pain and tenderness are much less than in the true hysterical affection of the breast, and it will be almost invariably found that the patient has witnessed the miseries of some friend or acquaintance who has suffered from carcinoma. No part of the body will bear that rigid scrutiny to which the breast is subjected under these circumstances. Close attention will discover in any, even in the most healthy organ, sensations which had been previously overlooked; and constant anxiety on the subject may magnify such sensations into pain. In these last-mentioned cases a strong assurance that no disease exists will make the patient happy, and remove the pain; but no such assurance will be adequate to the cure of a genuine hysterical affection.

Hysterical tympanitis is always attended with a more or less constipated state of the bowels. But obstinate constipation of the bowels is a frequent occurrence in hysterical patients, independently of any considerable degree of tympanitis; and I have known many instances in which a case of this kind has been mistaken for one of stricture in the upper part of the rectum. The surgeon here sometimes misleads himself by taking it for granted that a very long bougie may be introduced into the rectum, if there be no actual contraction; not recollecting that the naturally tortuous course of the bowel is often sufficient to prevent a bougie being passed more than a few inches, even in a healthy rectum. But the statement of the patient tends to mislead him also; for she describes herself as going to the water-closet, and yet being unable to eject the contents of the bowels. I will not say that it is so in all cases, but I am satisfied that, in

some instances, if you cross-examine the patient, you will find reason to believe that the hysterical constipation of the bowels is of the same nature with the hysterical retention of urine. The effort of volition is not exercised except when the accumulation of fæces has become excessive. Hysterical difficulty of deglutition, which is sometimes mistaken for stricture of the œsophagus, is probably an affection of the same kind; there being no actual spasm, but a defective action of the voluntary muscles, by means of which deglutition is performed.

Symptoms resembling those of tetanus occasionally occur in patients who are under the influence of hysteria; sometimes assuming the form of trismus, at other times that of *opisthotonos*. A case of *locked jaw*, cured by the injection of oil of turpentine into the rectum, and published by Dr. Philips (then residing at Andover) in the sixth volume of the Medico-Chirurgical Transactions, is manifestly one of this description.

In a great number of instances, local hysterical symptoms appear to be connected with some accidental injury; generally a very slight one; and they are then especially liable to be misunderstood, and mistaken for something very different from what they really are.

For example: a woman is bled in the arm. She complains, perhaps, of severe pain at the time; but this subsides, and the wound heals, as under ordinary circumstances. Then she complains of pain again, extending down the fore-arm to the hand, up the arm to the axilla and shoulder, and even to the side of the neck, and sometimes down the side of the chest also; the extent and degree of pain varying in different cases. You examine the cicatrix, but can discover nothing unusual in it; but the patient flinches when it is touched. She very commonly complains of the surgeon, saying that she was badly bled, or bled with a blunt lancet, or a foul lancet, or that a nerve was pricked which ought not to have been touched; while the real origin of her symptoms may be traced to the peculiar state of her own nervous system. If you investigate the case further you will always find that she has

been liable to various nervous symptoms previously to those which are attributed to her being bled; and when these last disappear, nervous symptoms of some other kind show themselves.

In another case, the patient has received a blow on the head. In order to avert the consequences which such an injury may be expected to produce, she is bled repeatedly, takes aperient medicines, and is kept on a low diet. When her physical powers are thus reduced, she complains of pain in the head even more than she did in the first instance; but the pain is of a different character, and is usually attended with other symptoms, such as do not belong to inflammation. Thus she has a sense of dizziness, or a feeling as if water was trickling over her head. Then the countenance is blanched, the skin is cool, and the pulse is probably small and quick, and weak. If under these circumstances, the surgeon, mistaking the nature of the case, continues to abstract blood, and to keep the patient on a low diet, all these symptoms become aggravated, other symptoms of a more decidedly hysterical character show themselves, and no improvement takes place until a more judicious treatment is adopted. In another case, which is of no unfrequent occurrence, a young woman pricks her finger, or perhaps the finger is merely pinched. Soon afterwards, she complains of pain extending from the finger upwards, along the hand and fore-arm. This probably is followed by a convulsive action of the muscles of the arm, or by a continued contraction of the flexor muscles on the anterior part of the arm, so that the fore-arm is kept permanently bent; at least while the patient is awake, for the spasm is generally relaxed during sleep.

But the symptoms which, in hysterical patients, are attributed to a local injury, often proceed much further than what I have hitherto described. For example:—

A young lady, 11 or 12 years of age, pricked the fore-finger of her left hand with the point of a pair of scissors. This was immediately followed by pain in the course of the median nerve, and on the following day the fore-arm was fixed by muscular contraction, at a right angle with the arm. After a few days, all the

muscles of the hand and fore-arm were affected with violent spasms, producing strange convulsive movements of the hand and fore-arm. These were attended with sickness and vomiting, so that for two days, whatever was received into the stomach was immediately rejected from it. By degrees the other limbs became affected in the same manner, and it was impossible for the patient to walk, or even to stand. Sometimes the diaphragm was affected so as almost to threaten suffocation. At other times the jaw was closed by a contraction of the masseter muscle, or she lay in a state of opisthotonos. Occasionally there was a violent pain in the head, which was described as having the same character as that of the finger which had been pricked; and these symptoms continued (sometimes one order of them, sometimes another, being predominant) until recovery took place under the circumstances which I shall have occasion to notice hereafter.

With a view to the further illustration of this part of the subject, I shall mention another case. A female about 30 years of age was admitted into St. George's Hospital on account of a simple fracture of both bones of the fore-arm. There was nothing unusual in the fracture, but she complained of an extreme degree of pain in the injured part. By degrees the pain extended up the arm to the axilla; then to the same side of the neck and head. The smallest motion of the limb, even the lifting the fore-arm off the pillow on which it lay, occasioned violent pain, and convulsive agitation of the limb, which were soon followed by what might be termed a state of hysterical syncope, in which the patient lay apparently insensible to external impressions for several minutes. The fracture united as under ordinary circumstances; but the nervous symptoms continued for many weeks, then subsiding gradually. It is worthy of notice (and this circumstance confirms the opinion, that symptoms of this kind belong more to the constitution than to the actual injury), that about two years before the occurrence of this last accident, this individual had met with a slight injury of the ankle, for which she was attended by Mr. Fuller, of Piccadilly; and that a train of nervous symptoms at that time

supervened, nearly similar to those with which she was afterwards affected in the hospital. It is also worthy of notice, that on both occasions she had occasionally a spitting of blood, probably furnished by the mucous membrane of the pharynx or trachea, as there was no reason either at the time, or afterwards, to suspect the existence of disease in the lungs.

I have seen several cases of a singular affection of the hand and wrist, which manifestly belongs to the class of cases of which we are now treating. It occurs in females who have a disposition to hysteria, especially in those who have suffered from mental anxiety and over-exertion, and is usually, but not constantly, referred to a sprain, or some other slight accident. The patient complains of pain on the back of the hand and wrist, trifling at first, but gradually becoming more severe. In many instances, after some time has elapsed, there is a diffused swelling of the soft parts, extending a short distance up the lower extremity of the fore-arm; and downwards as low as the fingers. This swelling is not attended with redness of the skin; and having lasted for a few weeks, it subsides, while the pain remains, constant in its character, aggravated by every motion of the limb, and always more severe in proportion as the patient's attention is in a greater degree directed to it. To prevent the motion, which she so much dreads, the patient keeps her hand in one position, and the consequence is that the joints become comparatively stiff, the hand at the same time having a very characteristic appearance, the skin being smooth and shining, and appearing to adhere more closely than is usual to the parts beneath. This state of things may continue for three months, for six months, or even for one or two years; the symptoms then gradually subsiding, without leading to any further ill consequences. The result, however, is not always so fortunate. I attended a lady who laboured under the symptoms which I have just described, with the late Dr. Luke. She left London on a visit to the continent, without any amendment having taken place. I saw her again after the lapse of four or five years; the muscles of the fore-arm were at this time wasted and paralytic; the whole

hand was shrivelled and useless; the fingers permanently contracted towards the palm of the hand; the nails thin and scabrous.

I shall conclude the present Lecture by a brief notice of some cases, which will serve to illustrate further the variety of singular local symptoms which may arise as a consequence of hysteria, and which may fall under your observation as practitioners in surgery.

I was consulted concerning a young lady, 18 years of age, under the following circumstances. She was liable to fits of incessant sneezing, attended with a most abundant flow of watery fluid from the nostrils. This sometimes alternated with a nervous cough; while at other times she suffered from that sensation in the throat which is usually described under the name of *globus hystericus*. Not unfrequently she was affected with ordinary paroxysms of hysteria. She had a feeble circulation, and cold hands and feet, and her menstruation was irregular and deficient; in other respects she was in good health. There was no evident disease in the nostrils.

A married lady, 31 years of age, was affected with similar fits of sneezing, attended also with a copious watery discharge from the nostrils. These symptoms attacked her once in a week, and in each of these attacks she sneezed not less than one hundred times; the watery fluid dropping from the nostrils so as to wet a pocket handkerchief completely through. About the same time she began to experience a disagreeable sensation in the face and palate, not amounting to pain, but which she described to be such as might be produced by a worm creeping in her flesh. These latter symptoms gradually became more distressing, while the fits of sneezing became less frequent. At the time of my being consulted, three years after the commencement of the disease, the fits of sneezing did not occur oftener than once in a month, but she complained of an aching pain, with a sense of pulsation, in the roof of the mouth, the teeth, and tongue, occurring chiefly during the night, and being then very severe. There were no perceptible marks either of inflammation, or of other disease, in the parts to which the pain was referred.

An unmarried lady, 32 years of age, consulted me on account of her being liable to some very distressing paroxysms, in which she experienced a difficulty of respiration, attended with a sense of constriction of the chest, and great general excitement and agitation. These paroxysms often continued for ten or fifteen minutes, recurring at irregular intervals; sometimes without any evident cause; while at other times they might be traced to some sudden emotion of the mind. So far the case did not differ from many other cases of hysteria; but the peculiarity of it and the circumstance which led to my being consulted, was as follows:—There was a particular spot near the ensiform cartilage, which she believed to be in some way or another connected with her complaint. Nothing could be discovered in this part different from what is usual, by the most strict examination; but the pressure of the finger on it never failed to induce one of the paroxysms which I have just described. When these paroxysms were most severe, they were always attended with an abundant flow of limpid urine. These symptoms had existed in a greater or less degree for ten or twelve years, and had supervened on a state of exhaustion, occasioned by an attack of typhus fever.

A young married lady, who was liable to ordinary attacks of hysteria, complained of a tender spot on the anterior part of the abdomen, a little below the ensiform cartilage. The slightest pressure of the finger on it caused excessive pain, and was followed by violent agitation on the whole person, bearing a more near resemblance to the convulsive motions of *chorea* than to anything else, and continuing for several minutes.

[redacted]

LECTURE III.

PATHOLOGY OF HYSTERIA—TREATMENT OF LOCAL HYSTERICAL AFFECTIONS.

ALTHOUGH the examples of local hysterical affections which I have adduced in the two preceding Lectures form only a part of those which you will meet with in practice, they are probably sufficient to answer the purpose of rendering you less liable than you would have been otherwise, to fall into the very common error of confounding cases of this description with those of real local disease. This is the principal object which I have had in view, in directing your attention to this subject; but it is one of much interest, and I am unwilling that you should leave it without proceeding somewhat further in the inquiries to which it leads. In the present lecture, then, I propose to offer some observations on the pathology of these cases, and on the treatment which should be employed for their relief.

Probably the following question has already presented itself to your minds. Is there any sufficient evidence that symptoms so various and dissimilar as some of those which have been described depend on one and the same cause? Are there good grounds for the hypothesis that a pain in the knee in one case, retention of urine in a second, tympanitis in a third, are only different manifestations of one and the same disease, and that they are connected with the same state of system as that which gives rise to the common fits of hysteria? The same question may arise if you refer to Sydenham's observations on hysteria, in which he has endeavoured to point out the symptoms which may mislead the medical, as I (following him *haud passibus æquis*) have now

endeavoured to point out those which may mislead the surgical practitioner. To this it may be answered, that there is scarcely a single case, such as I have endeavoured to describe, in which, if you have the opportunity of studying its history and progress, you will not find abundant proof of the patient having suffered, in a greater or less degree, from the ordinary and acknowledged symptoms of hysteria; the two orders of symptoms sometimes existing simultaneously; at other times, and more frequently, alternating with each other; and thus even a limited experience will enable you to satisfy your minds on the subject. But when you have attained an enlarged experience in your profession, you will find that it affords you evidence of another kind, though of such a nature that one individual cannot well communicate it to another, either in a lecture or writing. You will then find, that while no two of these cases are precisely and in all respects alike, it is by no means difficult to trace a series of cases leading from one to the other, by an almost imperceptible gradation, and connecting with each other symptoms which, in the first instance might be regarded as the most distant and heterogeneous.

Another question cannot fail to arise in the progress of these investigations. What is the real nature of the disease on which these various and anomalous symptoms depend? We cannot doubt that its locality is in the nervous system. This is sufficiently demonstrated by the characters of the symptoms themselves. Dissection, which illuminates so many of the darkest regions of pathology, affords us little assistance here; at least we derive from it only negative information. I have, in several instances, ex-

result? The best proof that it does not do so is furnished by the following circumstance; although so many die of other diseases, who have suffered from hysteria also, and the opportunities of examining the bodies of hysterical patients after death are therefore sufficiently numerous, yet the works of the best morbid anatomists contain no observations whatever on the subject. I have had the opportunity of instituting post mortem examinations in three cases, in which the hysterical affections were of so aggravated a kind as to be, directly or indirectly, the cause of death; and you shall know the result. In one of them, the patient laboured under a very severe hysterical pain in the side, and was liable, among various other hysterical symptoms, to fits, in which she was scarcely conscious of her own actions. It must have been in one of these attacks that a great number of needles were introduced into one of her legs, which afterwards occasioned much inflammation and effusion of serum into the cellular texture. The patient died, and the body was most carefully examined, but no morbid appearances of any kind could be discovered in it, except what belonged to the œdematous state of the leg. Another case is one to which I have referred already, in which, the patient having long laboured under an hysterical retention of urine, the bladder was found enormously distended, of a black colour, the mucous membrane and muscular tunic being at the same time much attenuated. This patient was an unmarried female, 29 years of age. Having been previously indisposed for a considerable time, she was supposed to have sprained her wrist in lifting a heavy saucepan. From this time she was never free from pain, in the situation of the outer part of the lower extremity of the radius. The pain extended up the fore-arm, and downwards on the side. In November 1814, about a month after the occurrence of the accident, she was admitted into the hospital. At this time the most careful examination could detect no alteration in the appearance of the limb, but she complained of a constant and intense pain, which extended from the supposed seat of the injury downwards to the fingers, upwards to the shoulder, and again

downwards to the spine and sternum. She had great oppression and difficulty of respiration, occasional twitches of the muscles of the face, and any sudden motion of the hand aggravated all these symptoms, and then threw her into a state approaching to that of syncope; in which she was almost unconscious of all that happened, lying with her eyes wide open, and at last recovering with an hysterical sobbing. Her pulse was feeble, beating 120 times in a minute. Forty ounces of urine were drawn off from the bladder, but without any relief as to the other symptoms. The tongue became black and dry; the pulse more feeble; the belly tympanitic; the alvine evacuations being of a dark colour. Then there was hiccough and vomiting; she became weaker and weaker, and died after the lapse of fourteen days from the time of her admission into the hospital. After death, the brain and the thoracic and abdominal viscera were very carefully examined, but no morbid appearances were discovered in any one of them, with the exception of the peculiar condition of the bladder, which was described formerly, and two ulcers of the mucous membrane of the *ilium*, each not more than half an inch in length, but occupying almost the entire circumference of the intestine.

The female, who was the subject of the third case had laboured under a paralytic affection of the lower limbs (*paraplegia*), which Dr. Seymour believed, with good reason, to be connected with, and the consequence of, hysteria. A practitioner whom she consulted, however, thought it advisable to have recourse to repeated blood-letting and other methods of depletion. The result was, the

assert that the organisation of the nervous system, in a person who is liable to aggravated hysterical affections, differs in no respect from that of another. The intimate structure of the brain, spinal chord, and nerves, is on too minute a scale for our senses to be able to perceive and comprehend it, and of course there may be differences in the organisation of these organs which our senses are incapable of detecting also. There is, it is true, nothing in the history of hysteria to justify the opinion that it is connected with any morbid growth, or morbid change of structure, such as we find to exist in what are usually termed organic diseases; but it is easy to suppose, without reference to organic disease, that the construction of the nervous system, at the period when growth is concluded, may not be the same in all individuals, and that an imperfect development of it may lay the foundation of all the aggravated hysterical affections. It seems to me that this hypothesis affords a reasonable explanation of the phenomena which those strange diseases present to our observation, and that it is not easy to explain them in any other manner. This being admitted, the connection of hysteria with the habits of early life, while growth is going on, becomes no mystery. We can understand, also, wherefore it is that the disposition is often, to a certain degree, hereditary; that it prevails in particular families, and that having been once established in the system, it is never totally eradicated. Nor is this opinion in any way contraindicated by the circumstance of hysterical symptoms alternating with longer or shorter intervals of perfect health. It is the same with many other nervous diseases, some of which are much more formidable than these. The lunatic has intervals in which his delusions vanish. A tumour pressing on the brain may occasion epilepsy: the cause exists always, but after the patient has had one fit, weeks or months may elapse before he has another. In like manner a patient may have a nervous system so constructed as to render her liable to attacks of hysteria. While she is strong and healthy in other respects, no hysterical symptoms arise; but if she be weakened by an attack of fever, by loss of blood, by too great

exertion of mind and body, or depressed by anxiety, grief, or disappointment, the disease is rendered manifest, and it assumes one form or another, accordingly as accident directs its influence to one or another part of the system.

This view of the origin and nature of hysterical affections derives some confirmation from a circumstance which I have had frequent occasion to observe; although it has not, as far as I know, been noticed by pathological writers. In those who are much disposed to them, there is an evident weakness and laxity of the tissues, independently of what may be supposed to belong to the tissues of the nervous system. Thus there is a peculiar looseness of the joints; sometimes existing to such an extent that they are liable to a kind of subluxation (a slipping in and out, as the patient terms it), without any laceration of the synovial membrane or ligaments. I have known several cases in which a patient, on making some sudden exertion, has experienced a sensation as if some muscular or ligamentous fibres had given way; and, in some instances, a severe nervous pain, referred to this and the neighbouring parts, has remained for a long time afterwards. It is not unusual for the smaller blood-vessels to burst, so as to occasion slight hæmorrhage; although there is no actual disease in the bleeding part. This occurs most frequently with respect to the vessels of the mucous membranes. The disposition to hæmorrhage, however, is not peculiar to these textures. In a patient concerning whom I was consulted with Mr. Mawdsley, there had been repeated hæmorrhages from the ears.

These things must be regarded as indications of great [illegible]

at the greatest distance from the vital organs, the point of the nose, for example, and the ankles, the circulation is so weak that they assume at times a purple appearance, followed by vesications, and even by a thin slough. These last-mentioned symptoms are, in themselves, a proof of an insufficient generation of nervous energy; they correspond to what is observed after severe injuries of the spinal chord, as well as to what occurred in the following cases, as the consequence of an injury of a nerve. A young man met with an accident, in which the ulnar nerve was divided behind the inner condyle of the arm. The wound healed readily; but when I was consulted, about three months afterwards, the little finger was cold and deprived of sensation, with purple spots upon it, similar to those which precede the formation of vesications. A girl was admitted some years ago into the hospital after a similar accident. The little finger was cold and benumbed, and occasionally the whole of the integuments covering it assumed a dark purple colour: this was always followed by a broad vesication; then by a superficial sore, which, however, healed by the formation of a new cuticle; and this process was repeated several times while the girl remained in the hospital.

In some instances the disposition to hysteria manifestly depends upon an original mal-construction of the nervous system, which probably has been transmitted from the parent to the child; in others it is equally manifest that it is the result of injudicious management in the early part of life. In the latter order of cases, the ill consequences which would otherwise ensue, may be altogether averted by the timely adoption of a better system of education; and in the former, much may be done in the interval between the period of infancy and that of growth being completed, to improve the condition of the individual, and to render her situation in after life less distressing than it would be otherwise.

You can render no more essential service to the more affluent classes of society, than by availing yourselves of every opportunity of explaining to those among them who are parents, how much

the ordinary system of education tends to engender the disposition to these diseases among their female children. If you would go further, so as to make them understand in what their error consists; what they ought to do, and what they ought to leave undone, you need only point out the difference between the plans usually pursued in the bringing up of the two sexes. The boys are sent at an early age to school, where a large portion of their time is passed in taking exercise in the open air; while their sisters are confined to heated rooms; taking little exercise out of doors, and often none at all except in a carriage. Then, for the most part, the latter spend much more of their time in actual study than the former. The mind is over-educated at the expense of the physical structure, and, after all, with little advantage to the mind itself; for who can doubt that the principal object of this part of education ought to be, not so much to fill the mind with knowledge, as to train it to a right exercise of its intellectual and moral faculties, or that, other things being the same, this is more easily accomplished in those whose animal functions are preserved in a healthy state, than it is in others?

But these observations relate only to measures of prevention; whereas, in practice, you will have to deal with cases in which the hysterical construction of the nervous system already exists.

The medical treatment of hysteria is in the department of the physician; and as this subject is treated of at length in the lectures on the practice of medicine, I shall only offer a few observations as to the principles on which it should be conducted.

In those in whom the liability to hysterical diseases exists, as I

health. The whole class of tonic remedies, especially steel, quinine, sulphate of zinc, and ammonia, may, under certain circumstances, be employed with advantage. So also, it is of importance that the patient should live on a generous diet; that she should take exercise out of doors, that she should live in the pure air of the country rather than in that of a crowded city; and that her mind should be agreeably occupied, without being exhausted by great exertions. Nothing tends more to aggravate the disposition to hysteria than the tedium and ennui of a life without occupation; when the mind is, as it were, thrown back upon itself, brooding over imaginary misfortunes, and creating for itself objects of anxiety.

The use of what are usually called antispasmodic remedies, especially valerian and assafœtida, is indicated, not where there is merely a liability to hysterical symptoms, but where these symptoms are actually present. Those tonics which are useful in preventing these symptoms, are useful in the removal of them also, especially where the disease assumes a chronic form, as it generally does in the cases which fall under the observation of the surgeon. Here, also, I have in several instances known much advantage to arise from a long-continued course of the sulphate of copper administered in pills, in small doses. Nor must we overlook another important rule of practice. There is often some particular circumstance in the state of the system at the time, which operates as the immediate exciting cause of the hysterical symptoms, and which medicine may remove. For example, in one individual there may be a furred tongue, and a costive state of the bowels; in another, deficient menstruation; and purgatives and emmenagogues may be administered with advantage, either separately or in combination. Again, it is not unusual in aggravated cases of hysteria to find the urine depositing a large quantity of lithic acid, in the form of sand; or the urine may be voided high-coloured, depositing a pink amorphous sediment, abounding in the lithate of ammonia; and in either of these cases the exhibition of alkalies combined with alterative doses of mercury, purgatives, and a

regulated diet, will contribute to produce a cure, the unhealthy quality of the urine seeming to be the cause, rather than the effect of the hysterical affection.

On all these points I refer you to the instructions which you will receive from some of your other teachers; but there are some questions connected with the surgical treatment of local hysterical affections, into the consideration of which I shall feel it my duty to enter more fully; although, in so doing, the advice which I shall have to give you will be for the most part of a negative kind, relating not so much to what you ought to do, as to what you ought to leave undone.

Hysterical pains are sometimes relieved by friction with a stimulating liniment; such, for example, as the compound camphor liniment, which may also be used in combination with the tincture of opium. The application of the belladonna plaster is occasionally useful, although it certainly does not produce those remarkable effects which not unfrequently follow its use in other cases of neuralgia.

Hysterical pains are sometimes palliated by bathing the affected part with the following lotion, applied tepid:

℞ Misturæ Camphoræ, ℥iss.
Spiritus Rosmarini, ℥iss. M. Fiat lotio.

In some instances the patients derive advantage from the exposure of the part to the vapour of hot water. This is especially useful in the cases of that peculiar affection of the wrist and hand which I described in the last lecture.

In those cases in which the limb to which the symptoms are

removed. This local treatment, however, should be confined with the exhibition of the sulphate of quinine, the use of which seems to be especially indicated by the intermitting character of the symptoms.

In some cases of hysterical neuralgia the patient is supposed to derive benefit from the abstraction of blood by leeches, or cupping, or even by venesection. Indeed, I have no doubt that the loss of blood is occasionally followed by a real alleviation of pain. But the relief is never otherwise than temporary; and wherever I have known this kind of treatment to be frequently resorted to, the ultimate result has been, certainly, not only not beneficial, but absolutely injurious to the patient. In fact, we may lay it down as a general rule, that whatever lessens the physical powers tends to prolong the duration of hysterical diseases of all kinds; and nothing produces this effect in a more marked manner than repeated blood-letting. Those who are subjected to this treatment, according to my experience, become almost invariably invalids for life; and I have no doubt that not unfrequently their lives are materially shortened by it.

Blisters, issues, and the whole class of counter-irritants, in the majority of cases increase the patient's sufferings; and there is one objection that may be urged against all local remedies, which applies especially to these, namely, that they prevent the attention being abstracted from the local symptoms. I may take this opportunity of observing, that nothing is more essential to the patient's recovery than that her mind should not be constantly occupied with the subject of her ailments. The treatment employed should be such as will involve as little as possible deviation from the ordinary habits of life. Thus in a case of hysterical neuralgia of the knee or hip, it seldom happens that any real amendment takes place while the patient remains confined as an invalid to her sofa. The pain may abate, but a sense of weakness follows, which disables her from walking more than the pain itself, and which for obvious reasons goes on increasing in proportion as the confinement is of longer duration. The first step towards a

cure is, that she should have sufficient strengh of mind to begin to use the limb in spite of present suffering.

Another question connected with surgical practice remains to be considered. In hysterical diseases affecting the extremities, will any advantage arise from the division of the nerves which supply the affected part, so as to destroy the communication between it and the sensorium? or from the entire removal of the part itself, by excision or amputation? If the view which I have been led to take of these affections, namely, that they belong to the nervous system generally, and not to the part to which the symptoms are referred, has any foundation in reality, it cannot be expected that such operations will lead to any good result; and the notorious failure of similar operations, when performed in cases of *tic douloureux* of the face, and *tetanus*, undoubtedly tends to confirm this opinion as to their utter inutility. Pathological science, however, is not so far advanced as to authorise us in any instance to disregard the lessons of experience; and it is well, before we arrive at a positive conclusion on the subject, that we should refer to this higher source of instruction.

In a case which I have already mentioned, of a young lady who had a train of most severe hysterical symptoms following the accidental prick of her finger, I was induced (many years ago) to divide the digital nerves. This was effected by a circular incision, carefully performed, extending through the whole of the nerves, integuments, vessels, and cellular texture, to the bones laterally, and to the aponeuroses of the tendons, anteriorly and posteriorly. The result was, that the patient's sufferings were aggravated

perience on the subject, I should have taken the same view of her case, I will not undertake to say, but the result was, that a material improvement took place in the first instance. After some time, however, there was a manifest aggravation of all her symptoms. She suffered more than ever; so that she became anxious to undergo the amputation of the limb. I was now again consulted respecting her, but from the written accounts which I received, I concluded that the pain did not indicate the existence of any serious disease, and that the circumstances of the case did not justify so violent a measure as had been proposed. However, her wishes remained unaltered, and two surgeons of eminence in the country, yielding to her entreaties, performed the operation. On dissection of the amputated joint, they were surprised to find that there was no collection of matter in its cavity; that the cartilages had disappeared in one spot, of very limited extent; and that there was no other mischief. The stump healed readily enough, but she obtained no relief. I had the opportunity of seeing her some months after the operation, suffering more than ever, with intense pain in the stump, and violent convulsive action of the muscles which move the thigh bone on the pelvis.

Mr. Soden, of Bath, informed me of another of these cases, which fell under his observation, in which also the limb was amputated above the knee, but with no better result than in the case last mentioned. The symptoms attacked the stump, and the patient suffered as much after the operation as she had done before.

The history of a third case, of the same kind, has been published by Mr. Herbert Mayo, in his Outlines of Pathology. The knee was amputated, and the stump healed. Soon after the stump was accidentally struck, and this slight accident was followed by pain in the part, exactly similar to that which had been referred formerly to the knee. Amputation was then performed a second time; but as the wound healed, the pain recurred, being again referred to the stump. Mr. Mayo then divided the sciatic nerve, below the edge of the glutæus maximus muscle. At first the pain was sup-

posed to have been relieved, as after the former operations; but it returned on the wound being healed. At this period I had the opportunity of seeing the patient, the pain which she endured being as severe as ever. In short she had undergone these various operations, without having derived the smallest advantage from any one of them.

It must be acknowledged that these, and other similar cases which might be enumerated, seem to be quite conclusive against all attempts to relieve these hysterical affections by an operation. Some evidence, however, may be, and has been, adduced on the other side of the question.

A young woman was bled in the arm, in July 1820. The wound healed as usual, but on the 7th of August she was admitted into St. George's Hospital, labouring under hysterical pain, referred chiefly to the cicatrix, but extending also downwards to the hand, upwards to the axilla, and again downwards on the side to the leg and foot, the latter being at the same time in a great degree benumbed. The whole of the arm was cold, and of a purple colour, and the skin was exquisitely sensible when pinched. On the 25th of August I excised the cicatrix. She was supposed to be immediately relieved; and when the wound made in the operation was healed, she left the hospital as cured. So far, then, it appeared as if the operation had been successful. But observe what happened afterwards. At the expiration of two months, she was readmitted, not on account of a recurrence of the pain in the arm, but with other symptoms depending on the same state of the general system. The nose was cold, and of a purple colour, and

further operation; removing the head of the thigh-bone from the acetabulum; and I have a letter from Mr. Mayo, in which he states that this last measure has been followed by a relief from pain up to the present time. We are also informed that Sir Astley Cooper* amputated the arm at the shoulder-joint, on account of a neuralgic affection of a stump, and that the patient was permanently cured; and that a similar operation was performed successfully by Mr. Bransby Cooper. However, until we know more of these cases than is now recorded, it is impossible for us to determine whether they did or did not belong to the class of hysterical affections. Even if they did, the question still remains; how long did the patients remain under the observation of the surgeons afterwards; and was a cure really obtained, or was there simply a commutation of one hysterical affection for another?

In estimating the value, not only of such operations, but of various other modes of treatment which have been supposed at one time or another to be useful in cases of aggravated hysteria, we are never to lose sight of the following circumstances:—1. *Hysterical symptoms frequently disappear at once, without any manifest cause for their disappearance.* Examples of this fact may be found among the cases to which I have had occasion to refer in the preceding Lectures. A young lady, who had been for more than two years confined to the recumbent posture on account of an hysterical affection simulating disease of the hip-joint, recovered suddenly one night while in the act of turning in bed. Another young lady, in whom a long train of most severe hysterical symptoms followed an accidental prick of one of her fingers, after the disease had existed for a great length of time (if I am not much mistaken, for more than two years), recovered also. 2. *It still more frequently happens that recovery from hysterical symptoms immediately follows a forcible impression of any kind made on the nervous system.* Hence it is that anything may obtain the credit of having effected a cure in these cases. Moral and physical agents are alike in this respect. Sometimes one

* Op. cit.

remedy may appear to be successful, sometimes another; and that which is supposed to be productive of the greatest benefit in one case, may never be useful afterwards.

I have already mentioned the case of a young lady who, having long laboured under an hysterical neuralgia of the hip and thigh, rendering her unable to stand, or even to walk, immediately lost all her symptoms on being thrown from a donkey which she was riding: and the following are only a few among many other cases, which might be adduced in confirmation of what has been just stated.

In the eighth volume of the transactions of the Royal Medical and Chirurgical Society, Mr. Pearson has described the case of a lady who laboured under a nervous affection of the hand and fore-arm, showing itself in the form of severe pain and spasms of the muscles, and she immediately recovered on the application of a stimulating liniment, which, containing oil of turpentine, produced a vesicular eruption over the whole person.

I was informed, on good authority, of the case of a young lady who had long laboured under a severe hysterical affection, attended with spasmodic contraction of the muscles of one of the lower limbs, and which symptoms left her suddenly, on the extraction of a molar tooth.

Many years ago, I attended a young lady on account of a painful affection of the instep, which I certainly did not understand at the time, but of which, with my present experience on these subjects, I am satisfied that it was hysterical neuralgia, and nothing else. She was attended by other surgeons afterwards, who, I believe, were as much perplexed as I was, as to the nature of the disease, and who, at all events, gave her no relief. At last, while suffering as much as ever, she was informed of some remarkable cures obtained by the use of the vapour bath and shampooing, and she immediately went to Brighton, that she might make a trial of these remedies. The first shampooing gave her great relief; the second completed the cure. I was consulted respecting her afterwards, labouring under a nervous affection of the arm and fore-arm.

In the 'Christian Observer,' for November 1830, we find recorded the case of Miss Fancourt who had long been unable to move in consequence of what was evidently an hysterical affection, simulating disease of the hip joint, and was supposed to have been miraculously cured under the influence of the prayers of her spiritual adviser, leaving her couch at once, and walking downstairs to supper, to the astonishment of her family.

We need not pursue this part of our inquiries further. To you who will soon be engaged in the practice of your profession, what I have now stated will be sufficient to impress your minds with a proper degree of scepticism, and to prevent you being misled by the caprices of these strange disorders. With respect to the great majority of society, whose minds are not accustomed to these investigations, and who do not know the difficulty of obtaining exact evidence as to the operation even of the remedies in common use, I feel that it will be almost a waste of time to endeavour to enlighten their minds on the subject. They will always be disposed to listen to, and to believe, the histories of the marvellous cures of hysterical affections; and with them conjurors of all kinds, from Prince Hohenlohe and the professors of animal magnetism, down to the most vulgar impostors, will always be the successful rivals of those practitioners, who have studied their profession as a science.

Before I quit the subject, I shall trouble you with one further piece of advice. I have told you that it is most important that you should not mistake cases of nervous affection for those of real local disease. It is equally important that you should not mistake the latter for the former; whenever you are in doubt, be careful that you do not employ any kind of treatment which would be injurious, if local disease existed. A short delay will always enable you to understand the exact nature of the case, so that you can no longer hesitate as to the remedies which are required for its relief.

WHEN Sir Benjamin Brodie ceased to give his complete course of Lectures on Surgery, in 1831, he annually addressed a limited number of Lectures to the Students of St. George's Hospital, from which the following have been selected.

ON SOME CASES OF CYSTS CONTAINING WATERY FLUID APPARENTLY CONNECTED WITH THE LIVER.

I PROPOSE in the present lecture to call your attention to the case of a little girl, who was some time since in the hospital, with a large encysted tumour, containing a watery fluid, and occupying a considerable portion of the left hypochondrium. In order, however, that what I have to say on the subject may be better understood, I shall offer to you some preliminary observations, and describe some other similar cases which I have met with in the course of my practice.

In the spring of the year 1822, I was consulted, in conjunction with a respectable medical practitioner of my acquaintance, respecting a young lady about 20 years of age, who laboured under a considerable enlargement of the parts situated in the right hypochondriac region. On examination we discovered a tumour, in which the fluctuation of fluid was very perceptible, lifting up the inferior ribs of the right side, and projecting forward so as to be visible below the edges of the ribs also. This tumour had begun to appear indistinctly a year or two before; at first producing some degree of pain; producing still more pain as it grew larger, and occasioning also much inconvenience to the patient by preventing her from sleeping, except in a particular position, and from

taking exercise. The tumour continued to increase, in spite of some remedies which were recommended; and as the inconvenience which it produced increased also, I was led, on the 27th of June 1822, to puncture it by means of a flat trocar cautiously introduced below the margin of the ribs. About three pints of watery fluid were evacuated. Care was taken that no air entered the orifice made by the trocar. The edges of the wound were brought together by means of adhesive plaster, and they healed by the first intention.

A bandage was applied round the upper part of the abdomen, and the patient was kept in bed for the first few days after the operation.

For two or three weeks she suffered from a troublesome and almost incessant cough. As the cough subsided, she found herself to be very much relieved. She was now free from pain, was able to walk as well as other persons, and to lie in any position.

It was after the lapse of more than six years, that I was again consulted by the same young lady, but it was on account of another complaint, and I was gratified to find that there had been no return of the tumour, and that she had continued quite free from any of her former symptoms.

A few months after the occurrence of the case which I have just related, a little boy was admitted into St. George's Hospital, under Dr. Chambers, with a tumour presenting itself below the margin of the ribs of the right side, lifting up the ribs also; with a distinct fluctuation, and altogether very nearly resembling the tumour which existed in the case just related.

In the following September it was determined, in a consultation between Dr. Chambers and myself, that I should puncture the tumour. Accordingly, a flat trocar was introduced below the margin of the ribs, and a pint and a half of watery fluid were drawn off. The wound healed by the first intention, without the smallest inconvenience arising from the operation. The boy left the hospital as cured, and I have had no opportunity of seeing or hearing of him since.

The fluid drawn off was exactly the same in both of these cases. It was clear and colourless, resembling water in appearance. When exposed to heat in a spoon over the flame of a candle, no coagulation took place, and the fluid almost wholly evaporated, leaving the smallest possible residuum of animal matter.

From the situation of these tumours, I was led to believe that they must have been connected with the liver; and this opinion is confirmed by the circumstance of my having not unfrequently noticed in dissection a membranous cyst, projecting on the convex surface of the liver, and containing a clear watery fluid. The cysts to which I allude are generally of the size of a marble. The largest which I have met with in the dead body may have contained from one to two ounces of fluid, but there is no reason why such a tumour, being once formed, should not attain any magnitude.

Cysts which contain a serous fluid of a turbid appearance, and coagulated with heat, are met with in various parts of the body. Sometimes they form a part of morbid growths of a malignant nature; at other times they are mere local diseases, having nothing malignant in their character. In some instances the cyst is a nest of hydatids, which escape, some of them entire, and others broken into fragments, when the cyst is opened. But these cases are all different from those which are now under our consideration; in the latter, the fluid consisted of little else than pure water, and there were no débris of hydatids, as there would have been if this had been the nature of the disease. Besides, in a case of hydatids, according to my experience, the evacuation of its contents is always followed either by suppuration of the cyst, or by an immediate re-accumulation of the fluid.

But cysts which contain an uncoagulable watery fluid are not uncommon in other organs, as well as in the liver. As I have told you on other occasions, you find them in the necks of infants, sometimes extending downwards, even within the parietes of the chest. The true encysted hydrocele is another example of the disease. The fluid is colourless and watery, containing scarcely any animal

matter, and quite different from that of the hydrocele of the tunica vaginalis. If you dissect the encysted hydrocele, you find a very thin membranous bag, quite distinct from the tunics of the testicle; sometimes lying between the tunica vaginalis and the epididymus; at other times interposed between the tunica vaginalis and the tunica albuginea, but more frequently in the cellular membrane of the spermatic chord. Here, as where the cyst is connected with the liver, although the fluid is generally very small in quantity, in a few cases it may amount to one or two pints, or even more. I was consulted concerning a little boy about 6 years of age who had been supposed to labour under a disease of the vertebræ. The only symptom, however, was a tumour over the posterior part of the ribs, on one side of the spine, of the size of a small orange, but of an oval shape. The mother said that she knew not how long the tumour had existed, as she had not noticed it until it had attained a considerable size, but there was no reason to believe that it was congenital. It evidently contained fluid, but had none of the usual characters of the spina bifida, and had very much the appearance of an abscess. On making a puncture, however, with a grooved needle, I drew off about six drachms of a clear, colourless, watery fluid, which was not the whole of what would probably have been drawn off if I had used a small trocar.

The case to which I referred in the beginning of my lecture, presents some circumstances of greater interest than those which I had met with previously. I shall read the notes of it contained in my case-book.

'Harriet Copeland, 9 years of age, was admitted into St. George's Hospital on the 9th of March 1834, with a firm elastic tumour in the left hypochondriac region, pushing forward the integuments, and extending backwards, beneath the lower ribs, to the left side of the spine. No pain was felt on pressure; the appearance of the skin over it was perfectly natural, and the patient's general health was good. Her mother stated, that about a year ago the child had received a severe blow on the left side from her school-

mistress; the pain which immediately followed soon ceased, and the circumstance was nearly forgotten, until about three weeks before she was brought to the hospital, when, in the act of running, she struck her side with much violence against a post; great pain followed the accident, and on examining the injured part, a tumour was discovered in the situation which has been described. At this time it did not seem to be larger than a hen's egg, but it rapidly increased in size afterwards.

'Having inquired into the case, I was led to believe that there was an encysted tumour in the abdominal cavity, and that it was probably connected with the left lobe of the liver. I determined, however, to keep the child for some time quiet, and to do nothing more, so that I might watch the progress of the disease, undisturbed by extraneous circumstances. On the 30th of April the tumour had still further increased in size, and presented to the fingers a distinct sense of fluctuation; I now punctured it with a small flat trocar, and drew off about eight ounces of a colourless watery fluid similar to that which had been drawn off in former cases.'

It will be unnecessary for me to occupy your time with the minute details of what happened afterwards, especially as they may be seen in my clinical-case book, to which you all have access. The principal facts may be briefly stated as follows:—

'After the operation the patient had repeated attacks of vomiting. Inflammation followed, beginning at the seat of the tumour, and extending to the neighbouring parts. Bleeding, purging, and the exhibition of mercury were had recourse to. The belly became swollen, tympanitic, and tender. On the 19th of May a tumour was again perceptible in the same situation as the former one. The fluctuation of fluid was perceptible; and it was painful as well as tender to the touch. It had the appearance of an abscess; but while I was waiting for what might be the most proper opportunity of opening it, it suddenly disappeared. On the 25th or 26th of May the nurse observed that pus was xed with the fæces. The purulent discharge continued until

the 29th of May, when a membranous cyst in a collapsed state was detected in one of the evacuations, and the discharge ceased. From this time the girl rapidly recovered, and soon afterwards left the hospital.'

On examining the cyst it was found to be of about the size of an orange. The coats were of considerable thickness, of which the greater part probably depended on the inflammation which had taken place, and on the contraction of the cyst after the abscess had discharged its contents.

We may conclude that the puncture of the cyst and the sudden abstraction of its watery contents had excited inflammation and suppuration. That under these circumstances adhesions were formed between the neighbouring parts, that the abscess burst into the colon, and that the cyst had afterwards been discharged through the ulcerated opening.

The case has been fortunate in its results. But it must in candour be acknowledged that this good result has not been attained without considerable danger to life. There is nothing in what has occurred that would justify us in making it our object to induce suppuration in another case of the same kind; and if we compare what happened in this case, with what happened in the two cases which I attended formerly, we shall find good reason for wishing to avoid it. On any occasion when some cause of anxiety has arisen, which I would avoid in future, I always consider whether anything in my own practice ought to have been different from what it was. Without such revision of our conduct we can never become really good surgeons. I suspect that in this instance I made an error in being over-anxious to draw off every portion of the fluid, and that in compressing the cyst for this purpose the canula of the trocar became a source of irritation, and laid the foundation of the inflammation which followed. I have seen the same thing happen in more than one case of ovarian dropsy, where the over-anxiety of the surgeon to empty the tumour completely has been followed by inflammation of the ovarian cyst, and placed the patient's life in danger.

ON UNUNITED FRACTURES.

I PROPOSE in this day's lecture to call your attention to the case of Henry Day, admitted into St. George's Hospital on the 25th of September last (1839). It is one of fracture of both bones of the leg, in which union has not taken place in the same way as under ordinary circumstances, inasmuch as it is not completed at the end of sixteen weeks. I have selected this case for our consideration, not only because it is interesting in itself, but also, because it will afford me the opportunity of making some observations on the want of union of fractures generally, and of explaining to you the circumstances under which it occurs, and the treatment which such cases require.

I shall first read the notes as entered in the clinical case-book.

'The patient is a coachmaker by occupation, 31 years of age: he says that he has been healthy, and he appears to be so at the present time. Fifteen weeks before his admission into the hospital he was thrown off a carriage. His heel came in contact with the ground, and when he attempted to rise and walk he found that he was unable to do so. He was carried home, and it was then discovered that both the tibia and the fibula of the right leg were broken. The limb was placed on a pillow, a splint was applied on each side of the leg, and in this position he remained about eight weeks. But at this time, on examining the limb the surgeon found that the bones were not united. The patient could stand: but when he threw the weight of the body on the injured limb, he felt that it gave way under him. The splints were again applied, and at the end of another fortnight I saw him, for the

first time, out of the hospital. I recommended that splints should still be worn, but with a greater degree of pressure on the fractured bones; and that, with the limb thus secured, he should be placed on crutches and allowed to walk, or rather to hobble about. After this he went into the country. At the end of fourteen weeks from the date of the accident I saw him again, and finding that still there was no bony union, advised him to come into the hospital. At the time of his admission a considerable degree of motion existed between the fractured ends of the bones, which were also in some degree displaced. The tibia appeared to have been broken about the centre, the line of fracture extending from within obliquely outwards and downwards. The lower part of the bone projected above the upper, and a sharp point belonging to the lower portion was perceptible under the skin. There was no shortening of the limb, and the man suffered little or no pain.'

Such, then, is the condition of the patient, sixteen weeks after the accident. From the quantity of motion between the bones, it is plain that there is no bony union, but I conclude that there is union by something like ligament.

The question then is, in what manner are we to proceed, so as to make the broken bones unite, and give this man ultimately an useful limb?

And in order to answer this question we must consider,

1st. In what manner do fractures unite under ordinary circumstances?

2nd. What are the circumstances under which fractures do not unite?

3rd. What are the various means that may be employed for the purpose of procuring the union of a fracture which has not united at the proper period?

Lastly, Which of these various means it will be best to adopt in this instance?

Union of Fractures under ordinary Circumstances.

The opinion held formerly respecting the union of a fracture—and this was Mr. Hunter's doctrine—was, that when a bone was broken, the blood became extravasated; that lymph was thrown out from inflammation; that the two broken ends of the bone became united by the coagulum of extravasated blood, and by the effused lymph; that this uniting substance became organised, bloodvessels being formed in it; and that, by and by, the vessels deposited bony matter. This is a very simple explanation of the phenomena which occur after a bone is broken; but it is too simple; and, in fact, does not correspond with what is found in nature. The real process is one of considerable complication. I made several experiments upon animals, many years ago, with a view to the elucidation of this subject. The results are displayed in a series of preparations contained in the museum of this hospital, and some of which, with explanatory drawings, are now on the table. I had proposed at that time to publish a paper on the union of fractures; but before my investigations were completed, I found the whole matter to have been made out by Baron Dupuytren so completely, that any farther publication on it was unnecessary.

I broke the bones of animals, and examined the appearances at different periods afterwards. Immediately on a bone being broken, you find a little blood extravasated; in general, also, the bones are considerably displaced, and riding one over another, owing to the animal not being quiet, and the unrestrained action of the muscles. For the first three or four days you see nothing more than you do immediately after the accident has occurred; but after this period there is a thickening, consolidation, and adhesion of the parts surrounding the fracture, and these changes extend to the muscles and neighbouring tendons. In the course of a week all these parts become firmly united, one with the other, and there is a soft yet firm substance, something between ligament and cartilage in consistence, which surrounds the broken extremities

of the bone. This newly-formed substance adheres to the bone above and below the fracture; the neighbouring muscles and tendons are closely attached to its surface; and the fractured extremities of the bone lie, as it were loose, in a cavity in the centre, with a small quantity of vascular albumen, resembling a semi-transparent jelly.

Here, then, is a kind of splint which nature contrives, and which is nearly completed within a week from the date of the accident. We call this new formation, the callus. This process goes on: the surrounding substance becomes thicker, and of still firmer consistence; and here is a drawing showing the appearance which the parts exhibit at the end of ten days after the accident. In the course of a few days more the thin jelly, which lay in contact with the broken ends of the bone, has disappeared, and its place is supplied by a callus continuous with that which formed the original capsule. This drawing explains the appearance which the parts exhibit at this period; and this we may consider as the termination of the first stage of the curative process. The broken ends of the bones now are completely imbedded in a mass of vascular organised substance, or callus, something between gristle and cartilage in consistence; and as yet there are no traces of bony matter in it. At this time, if you remove the adventitious substance, you find the broken ends of the bone retaining exactly their original figure, and presenting the same appearance as immediately after the fracture took place.

At the end of about three weeks, if you make a section of the callus, minute specks of earthy matter are visible, deposited in it here and there; and at the same time some of the callus seems to disappear on the outside, so that the neighbouring muscles and tendons adhere to it no longer. The specks of bone become more numerous, and larger, until they extend into each other; and thus by degrees the whole of the callus is converted into bone. This drawing represents the appearance of a fracture thirty days after the injury. It is taken from the broken leg of a guinea-pig, and you will perceive that the ossification of the callus is complete. Even

at this period, however, there is not absolute bony union, for although the whole of the callus has become bone, it is not yet identified with the old bone, so that you may still pick it off with a penknife, leaving the broken extremities not materially altered from what they were immediately after the injury. This may be regarded as the end of the second stage of the process by which a fracture is repaired.

Now a third series of changes begins to take place. The broken extremities of the bone become intimately united by bony matter passing from one to the other. The mass of new bone on the outside, formed by the ossification of the callus, being no longer wanted is absorbed. By degrees, the whole of it disappears, and the bone is left, having the dimensions which it had before the occurrence of the accident. All these changes are plainly to be seen in the preparations and drawings on the table.

Thus it appears that the process by which fractures become united under ordinary circumstances, may be divided into four series of changes; 1st, there is the effusion of albumen, thickening and consolidation of the surrounding textures, and the formation of callus; 2nd, there is the ossification of the callus; 3rd, there is a growing together of the broken bones, and the identification of the surfaces which are in contact with each other; *lastly*, there is the absorption of the ossified callus; and these changes take place in succession, in whatever manner the broken bones are in contact, whether it be by their broken surfaces, or laterally, or in any other way.

The process of union is completed in young persons sooner than in those who are advanced in life. In the upper extremities it is completed sooner than in the lower. Thus in the human subject, while it occupies six or eight weeks in the arm or fore-arm, it may occupy nine or ten weeks in the thigh or leg. In the smaller animals union takes place more speedily than it does in man.

Circumstances under which Fractures do not unite.

Fractures sometimes are not repaired in consequence of the anatomical structure of the parts in which the accident has occurred. The neck of the thigh-bone, when broken within the capsule of the hip-joint, does not become united. The fact is noticed by Morgagni, but it was not generally known until the observation was repeated by Sir Astley Cooper. It has been a question of late much agitated, whether bony union of the neck of the femur, within the capsule, can take place under any circumstances; but I need not enter into the consideration of it at present. We may be satisfied that the union of such a fracture is, at all events, a very rare occurrence, and that it does not unite in the same way as ordinary fractures. The structures in which this particular fracture occurs explain the circumstance. The neck of the femur within the articular capsule has a synovial membrane, but there is none of that mass of cellular membrane and muscles surrounding it in which the process of union begins, where the fracture is in the shaft of the bone. If any other explanation were wanted, we might refer to the small quantity of blood which probably would enter the head of the bone for the purpose of nutrition after the accident had occurred. If a fracture were to occur in any other bone, which is covered, as the neck of the femur is, only by a reflexion of the synovial membrane, I presume that the result would be the same. In the human subject there is scarcely any other bone in which such a thing can happen. There are, however, some bones which may be broken under similar circumstances in animals. While I was engaged in the series of experiments to which I have already referred, the fractures were made, as chance directed, sometimes in one situation, sometimes in another; for, of course, you cannot make a fracture just where you wish to make it. In one experiment, the bones of the leg of a guinea-pig were broken close to the ankle-joint. The tibia in these animals is covered by a reflexion of the synovial membrane, which extends upwards to some distance above the

ankle. The fracture, then, in this case corresponded to that of the neck of the femur within the capsule; and when I killed the animal some time afterwards, there had been no attempt at union. The broken ends of the bone fitted each other so exactly that there was scarcely any motion between them. The synovial membrane was scarcely torn. The ligaments were not torn. There had been no defect of nutrition, for the cancellous structure had become harder than natural, in consequence, as it seemed, of ossification of the medullary membrane; but the fractured bones were as distinct from each other as if the fracture had been recent.

Fracture of the neck of the femur unites ultimately by a ligamentous substance; at least it does so in many instances. The ligament is sufficient to bind the bones a little together, but it makes a very different bond of union from that which would be formed by actual bone: and even this imperfect union is the result of a very slow process; not being completed for some months.

It is not merely the neck of the femur in the human subject that does not unite, in consequence of its particular structure; at least something like this may be observed with respect to the bones of the cranium. A fissure of the cranium takes much longer to unite than a fracture of the arm. I first noticed this in examining the body of a person who died in St. George's Hospital, six months after an injury of the head. I had expected to find the fissure quite united, but it proved, on dissection, there was no union at all. In the Hunterian Museum, at the College of Surgeons, there is a specimen of extensive fracture of the skull indicating the same fact. The skull has been broken in several places. There is no displacement of the broken edges, yet there is no attempt at union. It is evident that the patient had lived a considerable time after the accident, the sharp edges of the fracture having been made smooth by absorption.

You will observe that the bones of the skull have the dura mater lining them on the inside, while on the outside there is

the periosteum, and over it the tendon of the occipito-frontalis muscle, without any intervening mass of loose cellular membrane. Whether it is to this, or to other circumstances in the anatomical structure of the parts, that the want of union in fracture of the cranium is to be attributed, I cannot say; but there is no doubt as to the fact. The union which is completed in a few weeks after a fracture in other bones, in the skull may require several months, or even a longer period. However, I believe that union always takes place at last.

It has been said that diseased bones, when broken, will not unite; and I believe this *may* be the case, where there is an abscess in the bone, where there is necrosis, and in some other instances. I know, however, that the rule is not *absolute*; and that in a great many cases, where the bone is diseased, it will unite perfectly. I had a patient who had disease of the bones; whether it arose from syphilis, or mercury, or a cachectic state of the constitution, I cannot say; however, some of the bones had nodes upon them, and were very much enlarged. The principal enlargement was in one of the clavicles, the bone being much diseased besides. This man, in using his arm, broke the collar bone, the fracture going through the diseased part. I bound up the limb, and with such knowledge as I then had, I concluded that there would be no union; but to my surprise it united quite as soon as ordinary fractures. Women labouring under cancer of the breast are very liable to scirrhous disease of the bones. Sometimes this disease, which is indicated by pain like those of the most severe rheumatism, will affect nearly the whole of the bones, which then become brittle, and very liable to break. Such a case occurred to me when I was a student. The patient was an old woman, dying of cancer, and who, in turning one day in bed, broke one of her thigh-bones. I concluded that the broken bone would not unite; but union took place as well as under ordinary circumstances. I attended a lady who had cancer of the breast, and pains of the limbs, indicating scirrhous disease of the bones. One of her clavicles was diseased in this

manner; and one day, in moving her arm, it was broken, but it united, just as if it had been a healthy bone.

It sometimes happens, when a fracture has been attended with more than usual injury, that a piece of muscle slips between the fractured extremities of the bone, and keeps them asunder; and, under these circumstances, as there is not that actual contact of the broken bones, which is necessary to union, union does not take place. Cases of this kind are on record, where the fact had been verified by dissection; and I have seen instances where we had reason to believe, on examining the living person, that the same thing had happened.

It is usually supposed that a great deal depends upon the limb not being kept perfectly quiet; and that if there be not a good apparatus employed, such as will fully answer this purpose, union may be prevented from taking place. I cannot say that this may not be a sufficient reason in the human subject, but it is not so in animals; for in them I have tried, over and over again, to prevent union, by giving motion to the bone broken several times daily; but it really appeared, that for the most part the process of union went on more rapidly in animals whose limbs were thus exercised than in others; and it was only in a single instance that, at the end of the time when bony union is generally completed, I found that there was no union, except by ligament.

In most instances, I cannot doubt that the want of union is to be traced to a peculiar state of the constitution. A gentleman was growing fat, and not liking to do so, he placed himself on a very spare diet, though accustomed to good living previously. After six months of starvation, he broke his arm, and the bone would not unite. I saw him many months afterwards, and there was scarcely any union, even by soft substance. Another patient, about whom I was consulted, a lady, also was growing corpulent, and she also thought she might prevent it, by pursuing a similar system of diet. Some months afterwards she broke her fore-arm, and union did not take place. A young man had been for many months living very low on account of a complaint under which he

laboured, and under these circumstances broke both bones of his fore-arm. At the end of several months there was no union. Cases of ununited fracture are not very common, yet here are three among those which have fallen under my observation, in which the want of union seems clearly to be traced to the bad state of the constitution, produced by abstinence from food. A man broke his thigh; his bowels were costive, and his surgeon allowed him to remain without an evacuation for ten days after the accident, and in him the broken bones did not unite. We cannot be certain that it was this long-continued costiveness which prevented the union of the fracture, but it seems probable that it was so.

If loose bandaging may prevent a fracture from uniting, by permitting the bones to have too great latitude of motion, I think it very probable that tight bandaging may in some cases produce just the same effect. If the limb be too tightly bandaged, especially above the fracture, it must have an insufficient supply of blood; and it is reasonable to suppose, that, this being the case, the restorative process which produces union of a fracture may not take place. I have made the following experiment several times:—I have broken the thigh of a rabbit, then tied the femoral artery, and killed the animal at the end of four days, and found the parts just as they would have been immediately after the injury. I have repeated the experiment in other animals, with this difference, that they were not destroyed until the end of the seventh day. Still there was no commencement of the process of union. But after this period, where the main artery of a limb is tied, the formation of callus begins to take place, and then the union goes on as usual. At the end of a week, it is reasonable to suppose that the anastomosing arterial branches will have become dilated, so as to make up for the obliteration of the femoral artery; but till there is time for this change in the state of the vessels to have taken place, it appears that the limb does not receive blood enough for the process of union to be established.

Appearances on Dissection of an Ununited Fracture.

The appearances which are observed when you dissect a fracture which has not united at the usual period, are different in different cases. In general, there is union by a ligamentous substance, not by bone. I say *ligamentous*, for we have no other name to give it; but it is not fibrous; it is merely like a firm, condensed albumen, which has become organised, without a distinct fibrous structure. There are some cases in which even this kind of union does not take place; and these cases are very remarkable. A new joint is formed—absolutely a false joint. The broken ends of the bone become rounded; there is a capsule nearly as thick as the capsule of the hip-joint or shoulder; this capsule is fibrous, like ligament; it is attached to the bones above and below the fracture, and there is a cavity, like the cavity of a joint, in which the broken ends of the bone lie. And there is more than this; the rounded ends of the bone being covered by a thin, ligamentous substance, and the inner surface of capsule being lined by a smooth membrane, like the synovial membrane, and capable not only of secreting synovia, but of secreting it in abundance. The capsule is a new formation; and the synovial membrane is a new formation also. It is not to be wondered that a synovial membrane should be formed under these circumstances. It seems very easy for the system to construct a membrane of this description. The bursæ mucosæ are made of synovial membrane, just like that of the joints. There is a bursa between the patella and the skin, and this in housemaids sometimes becomes diseased, and converted into a hard lump or tumour. I have frequently removed such a tumour from the knee of a housemaid, and some time afterwards, on examining the limb, I have been satisfied that the bursa had been regenerated. Nor is this a mere supposition; I have positive proof that the fact is as I have stated it. There was a woman in the hospital from whose knee the late Mr. Rose removed an enlarged bursa. A year or two afterwards she returned, and came under my care; and not only had the bursa been regenerated,

but the new one had become diseased like the old one, and I had to repeat the operation which Mr. Rose had performed formerly. She had gone back to her former occupation, which included a good deal of kneeling, and, under the influence of pressure, the new bursa had become converted into the same diseased structure as the old one. These cases of artificial joints are comparatively rare; the union by ligamentous substance is much more common.

Means to be employed for the Purpose of procuring an Union of the Fracture.

Let it be supposed that you are called to a case of ununited fracture. It is generally an object of great importance that the bones should be made to unite. I say generally, for there are some bones in which the want of union is no great evil. Here, for instance, is an ununited fracture of a rib. You will perceive that a joint is formed between the two bones, and I dare say that the patient suffered no inconvenience from it. But it is very different when the fracture is in the bones of the extremities. The first question that will occur to you is, whether there be anything in the constitution to account for the want of union? If there be, whatever is wrong must be corrected. One patient may require to be put on a better diet; another may require purgatives; another may stand in need of tonics. The late Mr. Wilson was accustomed to relate the case of a woman who, being a dram-drinker, had broken her leg. At first she was not allowed to take her usual drams, and the bones showed no disposition to unite. After some time she was allowed to have a certain quantity of spirit, and union took place immediately.

In the way of local treatment various methods have been recommended by different surgeons. Sometimes it appears that a very little matter will make a fracture unite, which had not united at the usual period. In numerous instances I have known a patient in the hospital kept in bed, with a broken leg, for ten weeks or longer, without union taking place; then a splint having

been placed on each side of the leg, we have given him crutches, directed him to walk about, put the limb to the ground, and exercise it as much as he could with the splints on, and the fracture had become united.

In other cases where a fracture was slow in uniting, I have had recourse to blisters. Mr. Sewell, of the Veterinary College, informed me of some observations which he had made on the advantages derived from this mode of treatment in horses, and it appeared to me that it was also useful where I tried it on the human subject. If this method, however, be employed at all, it should be in the course of eight or ten weeks from the date of the injury.

An operation was formerly recommended, but a very severe one, in which the surgeon made an incision on the broken ends of the bones, turned them out through the wound, sawed off a portion of each of them, put them back into their proper places as nearly as could be, afterwards applying splints, and treating the case like one of compound fracture, into which, in fact, it was converted. Of course those who had recourse to this operation expected that it would produce a cure. But I have talked on the subject with surgeons of experience of the old school, who have told me, that although they had seen the operation frequently performed, they had never known it to answer the intended purpose. Some years since a provincial surgeon of eminence communicated to the Royal Medical and Chirurgical Society an account of a case in which he believed that he had performed this operation successfully. But I have since been informed, on what I believe to be indubitable authority, that he mistook the thickening of the soft parts which followed the operation for bony union, and that the event proved that there was no bony union whatever. I believe that it is now acknowledged that the success of this operation is at any rate very problematical; and as it cannot but be attended with some degree of hazard, I do not suppose that any modern surgeon, having a moderate share of prudence, would undertake it.

Sir Everard Home used to mention in his lectures the case of a

man with ununited fracture of the humerus, who was under the care of Mr. Hunter. There was an artificial joint, and Mr. Hunter having made an incision into it, introduced a spatula, scraping and irritating the lining membrane and the bone. This induced considerable inflammation, which ended in ankylosis, and thus the patient was cured.

I am not aware that this exact operation has been performed in any other case. Dr. Physick, of Philadelphia, however, has proposed what seems to be an improvement in it. He saw that the only object of Mr. Hunter's operation was to induce inflammation, and that this object might be attained equally, and with more safety to the patient, by passing a seton through the artificial joint. This method must certainly be preferable to that of Mr. Hunter, as, when suppuration has taken place, the matter, instead of being pent up, cannot fail to be conducted outwards in one direction or another by the seton. The principle of the two operations is the same; and it is not improbable that Dr. Physick was led to the use of the seton by a knowledge of what had been done by Mr. Hunter. He had been Mr. Hunter's pupil; and this hospital has the honour of having his name in the list of those distinguished persons, who, at the end of their studies, filled the office here of house surgeon. This operation with the seton, as recommended by Dr. Physick, has been tried in this country several times; and I have myself performed it in four instances. The first was in the case of an ununited fracture of the thigh in a lad. Union took place, but not until after a very long period of time. The second time that I used the seton was in the case of an ununited fracture of the thigh in a man. The introduction of it was followed by so much disturbance of the constitution, that I was led to remove it. On these symptoms having subsided, I reintroduced it; and it was now kept in for a considerable time without any ill consequence. I think that the treatment had a very fair trial, but no cure was effected, and the patient went out with the bones just as loose as they were when he was first brought to the hospital. A third patient was under my care in this

hospital, who had broken the collar-bone many years before, but it had not united. There was an artificial joint, allowing considerable motion of the fractured bones. I passed a seton through the joint. It was kept in for several weeks, and a perfect cure was accomplished. The fourth case was that of a little boy with an ununited fracture of the tibia. The seton was introduced between the bones, and allowed to remain, if my recollection be accurate (for I have not been able to lay my hand on my notes of the case), for some months, but with no advantage whatever.

Mr. Stansfield, of Leeds, performed the same operation in a case of ununited fracture of the arm, and with success. Mr. Earle also performed it on the arm, but it failed. The result of the practice in this country appears to be, that sometimes it has succeeded in the upper extremities, but that where it has been performed on the lower extremities, as far as I know, it has only succeeded in a single instance—namely, that of the patient in this hospital, under my care. Dr. Dorsey (who was Dr. Physick's nephew, and adjunct professor with him in Philadelphia), in the last letter which I had from him before his death, informed me, as the result of the operation with the seton in the United States, that it had generally succeeded in the upper limbs, but that it had always failed in the lower. He added, that in the former case, it was often necessary to keep the seton in for several months. The operation is, to say the best of it, uncertain, and the result tedious.

Another method of treatment has been proposed by Mr. Amesbury, which I believe to have been more successful than any of those which I have before mentioned; and which has this recommendation, that if it do no good, it can do no harm. Mr. Amesbury proposes to keep the bones in a state of the most complete repose, by means of a suitable application of splints and bandages; at the same time that the broken extremities are kept firmly and steadily pressed against each other. By this pressure, a fresh action is induced, and the bones are at last found to grow together I do not know that this firm pressure produces the union of the bone by a process at all like that which takes place in the first

instance after the occurrence of a fracture. It seems to be more probable that it causes the surface to grow together, without the provisional callus being formed on the outside. However that may be, I know that in several cases it has succeeded perfectly. Such was the result in three cases which I attended with Mr. Amesbury. In one of these the fracture was in the arm; and in another in the fore-arm; and in a third in the thigh. The last case is remarkable in some respects. The thigh-bone had been obliquely fractured in the middle of the shaft. The patient was supposed to have recovered, if recovery it could be called, where the limb was full three inches shorter than the other. The union was so strong, that the patient could throw the whole weight of his body on the injured limb, and in my presence hopped round the room upon it. On a careful examination, however, there was found to be so much yielding motion between the upper and lower portions of the bone, that it was plain that the union could be merely ligamentous; and the result proved this opinion to be correct, as, after Mr. Amesbury's treatment was concluded, the difference in the length of the two limbs was reduced to one inch and a half. I have adopted the same treatment in two cases under my own care, one of them being that of a patient in this hospital with an ununited fracture of the arm, the other that of a private patient with an ununited fracture of the bones of the fore-arm, and in both cases with success.

In this mode of treatment the pressure must be considerable, so as to cause some inconvenience to the patient both from pain and from swelling of the limb below. But the inconvenience is only temporary. If at the end of a certain time you find that no union has taken place, still you leave the patient as well as you found him, and he had at any rate the satisfaction of knowing that you have done all that could be done for his relief.

The principle of Mr. Amesbury's practice is simply that of keeping the ends of the bones in perfect repose, and at the same time applying pressure, particularly on the broken surfaces, so as to keep them in the closest possible contact with each other. Of

course no general rule can be laid down as to the mode of attaining this object. In a case of transverse fracture, one kind of apparatus must be applied, in one of oblique fracture another, and in one of comminuted fracture a third. The apparatus will also differ accordingly as it is a fracture of the arm, the fore-arm, the leg, or the thigh. In a case of oblique fracture a very simple apparatus will do all that is required. Secure the limb by fastening it to a single rather broad wooden splint. Apply a pad of thick leather on each side of the fracture, and then a tourniquet, by which the two opposite surfaces of bone may be kept firmly squeezed against each other. By means of the tourniquet the pressure may be easily regulated, and increased or diminished as the patient can bear it. The best kind of tourniquet is not the common one, known under the name of Petit's, but one which occupies a smaller space, invented by the late Mr. Savigny, and sold by Philp and Whicker in St. James's Street.

I do not say, however, that this method always succeeds. I had tried it in the case of the little boy whose case I have already mentioned (on whose leg I afterwards used the seton), and without advantage. There was another patient in this hospital on whom it was tried for a considerable time under Mr. Amesbury's observation, and no union was effected; and it appears that Mr. Amesbury has met with some cases in his own private practice, in which he has adopted it, and no doubt done ample justice to it, but in which it has failed. Still it has proved a very successful method on the whole, and certainly very much more successful than any other.

Plan to be pursued with regard to the present Patient.

In this patient I shall adopt the plan recommended by Mr. Amesbury; and as there is some union by a soft substance, and as no more than fifteen weeks have elapsed since the accident happened, I think the chances are much in the man's favour. The patient's limb will be bound up in splints, one on each side, and compresses will be applied upon the two broken ends of the

bone, so as to press them firmly and steadily against each other. I need not describe the apparatus employed in any more particular manner, as you will have an opportunity of seeing it and examining it for yourselves. No particular constitutional treatment seems to be required. The patient has been of sober and regular habits. He was in good health before he met with the accident, and continues to be so at the present moment.

ON SERO-CYSTIC TUMOURS OF THE FEMALE BREAST.

THE disease of which I propose to treat on the present occasion, is an affection of the female breast. It is one of great interest in various ways, and among others in this; that in its more advanced stages, although it is not really of a malignant nature, it is liable to be confounded with carcinoma. It is met with not unfrequently in hospital practice, but I do not know that I should have been able to trace its exact history if I had trusted altogether to my hospital experience. In private practice it is of frequent occurrence; yet I have not met with any description of it in books corresponding to what I have myself observed of its actual progress. You will presently see that this is easily to be explained by the disease assuming a wholly new character as it proceeds, so that if you were to look at two cases of it, one in an early, and the other in a more advanced stage, without having witnessed the intermediate changes which have taken place, you would be scarcely able to recognise their identity. Let me not, however, be misunderstood as representing that no notice whatever has been taken of the disease by surgical writers. The account which Sir Astley Cooper has given of the hydatid breast has been taken principally from cases of this kind, and there are also some allusions to it in the 'Treatise on Diseases of the Breast' lately published by M. Velpeau.

The first perceptible indication of the disease is a globular tumour imbedded in the glandular structure of the breast, and to a certain extent movable underneath the skin. Sometimes there is only one such tumour; at other times there are two or three, or

many more. The examination of the breast in the living person does not enable you to determine the exact number which exists, as it is only where they have attained a certain magnitude that they are perceptible through the skin. In most instances the disease is confined to one breast, though it is by no means very uncommon for both breasts to be similarly affected.

The globular form which the tumour invariably assumes in the first instance, is a sufficient proof that it is formed of fluid collected in a cyst, and of course pressing equally in every direction. If you puncture the tumour with a grooved needle, the fluid may be evacuated so as completely to empty the cyst, and the perfect subsidence of it afterwards proves how little space the cyst itself occupies. The fluid is always serous. When the tumour is small it seems to be serum unmixed with anything else. In a more advanced stage of the disease, some colouring matter is generally blended with it, and it may be green, or brown, or so dark-coloured as to be almost black. The quantity of fluid of course varies. In dissection, I have sometimes found the cyst to be so small, as to contain scarcely a single drop. But in a more advanced stage, it is capable of containing several ounces. In two cases, in each of which I had the opportunity of dissecting a breast affected with this disease, I found small cysts, composed of a thin membrane, and containing serum, pervading the whole of the glandular structure, the intermediate parts of the breast presenting a perfectly healthy and natural appearance; and I could discover nothing more. There seems to be little doubt that the cysts are originally formed by a dilatation of the lactiferous tubes. In one of the preparations now on the table, you will perceive a bristle introduced into the orifice of one of these tubes opening on the nipple, which has passed into a cyst immediately below; and it is not uncommon to find that by pressure on the tumour the fluid may be made to escape by the nipple, so that you may even expel the whole of it.

The globular form of the tumour, and the impression which the fluid within it gives to the fingers, in general furnishes you with

the means of an easy diagnosis in the early stage of the disease. Where there is any doubt on the subject, it may be resolved by the introduction of a grooved needle; to this there is never any objection, and in some cases it is absolutely necessary. Occasionally the tumour is so deeply seated, with so much of the gland of the breast lying over it, that even a very experienced person may not at once recognise its nature in the first instance, and may be led to suppose that it is a medullary tumour, or a chronic abscess, or anything else rather than what it really is.

To complete this history of the disease, as it first shows itself, I may add that the general health is unaffected, and that the patient complains of no pain, unless it be that, in some instances, there are those disagreeable nervous sensations which are apt to arise whenever the attention is anxiously directed to any one part of the body. I have never known the disease to occur previously to the age of puberty; it is rare after the middle period of life; and I am inclined to believe it is more common in single than in married women.

There are not a few cases in which no morbid changes take place beyond that which I have already described; the cyst remaining unaltered, or only slowly increasing in size during the remainder of the patient's life. But in other cases the tumours lose their globular form, and a solid substance is deposited in the breast connecting different cysts with each other in one large mass of disease. This process may be going on for many successive years without inducing pain or much inconvenience, except what belongs to the bulk of the tumour. But the period at last arrives when other changes take place, the disease assuming a more formidable and dangerous character. The skin, being in some one part more tense and thin than elsewhere, becomes inflamed and ulcerates, and an intractable and bleeding ulcer is the consequence. Then one of the cysts, more distended than the rest, gives way, discharging its serous contents. Perhaps the opening heals, then again gives way; and this may recur several times, until at last a fungous growth protrudes through the opening. And here the

question arises—what is the exact nature of changes, which, by a gradual operation, at last converts a disease, so small and simple in its origin, into one so extensive and complicated? This I shall next endeavour to explain; and a series of preparations on the table, with the histories of the cases belonging to them, will enable me to do so.

The first of these is a membranous cyst, which I removed from the breast of a private patient. It is of the size of a large walnut; and you will observe that about one-fourth part of its cavity is occupied by an irregularly-shaped excrescence attached to one portion of its internal surface.

Several years ago Mr. Green and myself were present when Mr. Freeman, of Spring Gardens, removed the breast of a female with a similar tumour imbedded in it. The tumour was of about the same size as that which I have just shown you; and in my notes of the case I find it stated, that 'the cyst contained serum, but that about one-third part of its cavity was occupied by an excrescence which grew from one portion of its inner surface. The excrescence had the appearance of fibrine which had become vascular.'

The history of the patient whose case has furnished us with the next preparation is highly interesting, and illustrates many circumstances connected with this disease.

This lady consulted me in the month of October 1837 respecting a tumour of the breast which might be compared as to size to a large nutmeg. It was of a globular shape, and evidently contained fluid. I punctured it with a grooved needle, and a yellow serum escaped. There were no other indications of disease. Afterwards I made a free opening into the cyst with a lancet, and the whole of the fluid having been evacuated, I introduced a piece of lint, with a view to produce inflammation and the formation of granulations on its inner surface, which might obliterate its cavity. An abundant suppuration and a good deal of inconvenience followed this trifling operation. At the end of about two

months, although the abscess was not perfectly closed, the patient, believing herself to be nearly well, left London of her own accord. I heard nothing of her from this time until, after the lapse of about fifteen months, she again placed herself under my care. In the situation of the cyst which I had laid open there was a considerable solid tumour, a portion of which, of about half the size of an orange, projected through an opening in the skin, forming an irregularly-shaped fungus. There seemed to be no other remedy than that of the removal of the breast by an operation, to which the patient willingly consented, and from which she recovered favourably.*

On examining the tumour in its recent state some remains of the original membranous cyst, containing a small quantity of serum, were found at its basis. A large quantity of solid substance projected as an excrescence from the inner surface of the cyst, assuming a peculiar plicated or fimbriated appearance, and a portion of this excrescence protruding through the skin, formed the external fungus. You will see these appearances distinctly visible in the preparation, although not so plainly as before the parts were immersed in alcohol; and they are well represented in this drawing, which is made with Mr. Perry's usual accuracy. The structure of the morbid growth seems to be of the simplest kind. I can compare it to nothing else than fibrine imperfectly organised. Its existence does not seem to be limited to the inside of the cyst, a considerable mass being on the outside, in immediate contact with the gland of the breast. Previously to the operation the remaining part of the breast appeared to be in a healthy condition; but on dissection afterwards, I found imbedded in it a great number of membranous cysts, of various sizes, from that of a pea to that of a horse-bean. These cysts contained a transparent yellow serum, and were evidently of the same nature with the larger cyst which I had formerly punctured, and in which the fungus had originated afterwards.

* I heard of this patient six years after the operation, and that she had continued well.

The preparation which I now show you leads me to the history of a patient who is still under the care of Mr. Keate, in this hospital. Fifteen months ago, being then an out-patient, she had a tumour of the left breast, above the nipple, of the size of a walnut. It was globular and movable. Mr. Cutler punctured it with a grooved needle, and ascertained that it contained serum. Soon afterwards it was found that a fluid, similar to that which had escaped by the puncture was discharged by the nipple. From this time the tumour gradually increased in size. Six weeks ago Mr. Keate repeated the puncture with a needle, giving exit to a large quantity of yellow serum. The tumour, in consequence, was much reduced in size, but it soon enlarged again, so as to exceed its former dimensions. On the 21st of last December, Mr. Keate made an incision into it, and the cyst was now so capacious that not less than half a pint of serum was evacuated by the wound. The serum now was tinged with blood, and a good deal of hæmorrhage followed the incision. In the course of a few days a large dark-coloured fungus was seen projecting through the wound. Under these circumstances, on the second of the present month (February 1840), Mr. Keate amputated the breast, and you may here see the morbid appearances which it presents.

The tumour consists of a large membranous cyst, which might have been capable of containing twelve ounces of fluid, if the greater part of its cavity had not been occupied by a great number of excrescences attached to its inner surface. These excrescences vary in size, the smallest being not bigger than a pea, while one of them is of the size of a small orange. They are covered by a thin membrane, which appears to be continuous with, and a reflexion of, the inner layer of the cyst. When cut into, these excrescences present the appearance of a considerable variety of structure. Some of them may be compared to recently coagulated albumen not yet organised; others, to imperfectly organised fibrine; some of them have an apparent resemblance to fatty tumours, although I do not find that they actually contain any

oily matter, and one of them might, on the first view of it, be almost mistaken for medullary disease.

The tumour which is displayed in the next preparation illustrates a still more advanced stage of the disease. I removed it from the breast of a private patient in the month of November 1836. It had existed for many years; gradually, but slowly, increasing in size. You may perceive that at the time of its removal the tumour was not larger than a small orange, and that it was of an irregular shape. Near the base of the nipple is a membranous cyst, which contained two or three drachms of very dark-coloured serum. Some smaller cysts, which also contained serum, are seen in the neighbourhood; and a bristle introduced at one of the ducts of the nipple has entered one of the cysts by a smaller circular aperture. The tumour, on a superficial view of it, appears to be one uniform mass of solid substance; but on a more close inspection you find it to consist of a congeries of membranous cysts, the cavities of which are completely filled with fibrinous matter. In many of the cysts, on examination with a probe, I found this fibrinous matter to have an attachment to one part of the inner surface, lying in contact with the lining membrane elsewhere, but having no actual adhesion to it.*

* As I was on the point of revising this lecture for republication (September 1845), this patient again consulted me on account of a small tumour which had shown itself in the neighbourhood of that which I had removed formerly. I advised her to have it removed, and (as I was on the point of leaving London for a time) to place herself for that purpose under the care of another surgeon. She accordingly applied to Mr. Aston Key, who has been so kind as to send me the following account of the appearances which the tumour presented:—'It was solid, containing an amber-coloured pulpy mass disposed in cells. In one small spot there was a dark-coloured mass resembling the fungoid tubercles that occur on the cheek, and that are of a malignant character. The cyst containing the mass was dense, and in one spot adhered firmly to the pectoral muscle.'

It seems to me not improbable that the recurrence of the disease in this case arose from some small portion of the gland having been left adhering to the integuments in the former operation. There can be little doubt that this happened in another case, which may be thus briefly stated. A lady consulted a surgeon of eminence on account of a tumour of the breast, which he removed by an operation. I had the opportunity of examining the tumour, which con-

We can scarcely doubt that, if in this case the operation had been deferred until a later period, the growths of fibrinous matter, by which the cysts were occupied, would have contracted universal adhesions to the membrane with which they lay in contact, and that the whole, with the exception of those cysts which still contained serum, would have been identified in one solid mass of substance, in which the original cystic structure would have entirely disappeared. Of this last-mentioned change, the preparation which I now show you seems to furnish an example. The patient from whom this specimen was taken was under my care in the year 1818. I have no notes of the early history of the case; but the disease had probably been of long duration; as, at the time of my being consulted, the breast had attained an enormous size, being not less than seven pounds in weight. She was a middle-aged person, otherwise in good health, and the skin and the axillary glands were free from disease. Under these circumstances the diseased breast was amputated. The wound healed favourably; and I heard of the patient being alive and well, several years afterwards. If you examine the cut surface of the tumour, or rather, of that portion of it which is displayed in the preparation, you will see that the greater part of it is one uniform solid mass, of which it is difficult to describe the structure in words, further than by saying, that in some parts it has an indistinct laminated appearance. There are, however, in one part of it, several membranous cysts of various dimensions, which, when first cut into, were found containing serum. One of these is distinguished from the rest by its greater size, being capable of containing several ounces of fluid, and also by it being occupied by a large excrescence, attached to one part of its inner surface, and projecting into its cavity. This excrescence is of an irregular

sisted of a single membranous cyst, containing a dark-coloured serum. About three years afterwards a chain of small globular tumours appeared in the neighbourhood of the cicatrix, which were removed by myself. They proved to be membranous bags, containing dark-coloured serum, similar to the original tumour. This was several years since, and there was no recurrence of the disease.

shape, very similar in appearance to some of those which you have seen in the other preparations. In its recent state it seemed to consist of distinct masses of coagulated albumen, semi-pellucid, some of a light yellow, others approaching to a purple colour, and altogether bearing no small resemblance to a bunch of white and purple grapes. These peculiar appearances, of course, have been destroyed by the immersion in alcohol.

Having explained to you these facts in detail, with a view to impress the subject more completely on your minds, I shall endeavour to trace, in a few words, the pathological history which they seem to establish, and which, not only as a matter of science, but in a practical point of view, it is important for you to understand. It appears, then, to be as follows:—

1st. A greater or less number of membranous cysts are generated in the breast, containing serum. The latter is at first of a light yellow colour, and transparent, but afterwards becomes of a darker colour, and opaque. There is reason to believe that these cysts are formed by a dilatation of portions of some of the lactiferous tubes.

2nd. Morbid growths or excrescences are generated from the inner surface of one or more of these cysts projecting into their cavities. These excrescences seem to consist of albumen or fibrine which after some time (if not immediately) becomes organised. They are covered by a thin delicate membrane which is reflected over them from the inner surface of the cyst; but whether they are originally formed between two layers of the membrane of the cyst, or whether they are at first mere deposits of fibrine or albumen on the inner surface of the cyst, a thin membrane being formed on their surface afterwards, remains to be determined by future observations.

3rd. There is some reason for believing that a similar growth of fibrinous substance may take place from the external surface of the cysts connecting different cysts with each other; but this point also may, perhaps, require to be illustrated by further investigations.

4th. Under certain circumstances the cysts become completely filled up by the morbid growths, so that their cavities are obliterated, the tumour being thus converted into a solid mass, in which, however, the remains of the cysts are perceptible; and this is the prelude to a still further change in which the greater part of the cysts have wholly disappeared, a solid mass of an indistinctly laminated texture occupying their place.

5th. If one of the membranous cysts be artificially laid open, or if it burst from over-distension with serum, the fibrinous excrescence from its inner surface, being no longer restrained by the pressure of the skin, increases in size, and protrudes externally in the form of a fungus, giving to the tumour a new and more formidable character.

In this last stage of the disease, it is evident that spreading ulceration, sloughing, and hæmorrhage, the usual results of an ulcer occurring in a diseased structure, must ensue, for which our art furnishes no other means of cure than the removal of the affected parts by a surgical operation.

And this leads us to the concluding and most important part of these inquiries.

In considering the treatment of these cases, it is convenient to distinguish those in which the disease is still in its earliest stage, presenting itself in the form of a membranous cyst, or cysts, containing serum, from those in which the growth of a solid fibrinous substance has become superadded to this simple original structure.

In the first order of cases, we may venture to evacuate the fluid contents of the cyst by puncturing it with a grooved needle. No inconvenience is ever the result of this operation; and it is often useful not only by assisting us in our diagnosis, but also by enabling us to determine whether any growth of solid matter, in connection with the cyst, has yet taken place. But it is not productive of any permanent benefit, as the fluid is always regenerated in the course of two or three days. I have no experience which would lead me to recommend any further or more con-

siderable operation than this. It is needless to remove what appears to be a solitary cyst, as it is always highly probable that there are other cysts in other parts of the breast co-existing with it, which are not yet sufficiently developed to be perceptible through the skin; or at any rate, that such cysts will be formed afterwards if they do not exist already: and as to the removal of the entire breast, it is, under these circumstances, an unjustifiable proceeding, unless it be in a few cases in which the cyst or cysts have attained so large a size as to be inconvenient from their bulk. The disease, in its early stage, causes no suffering, and may possibly, even if left to take its own course, remain for years, or for the whole of the patient's life, without advancing farther. Moreover, there is a simple and safe mode of treatment which, at this period, may often be employed with great advantage, being indeed, successful in the majority of cases, causing little inconvenience to the patient, and not open to those objections to which any severe operation is always liable.

Many years ago, a lady consulted me concerning a small tumour of the breast, near the nipple, and apparently containing fluid. Not at that time knowing anything better, I recommended that it should be removed by the knife. The day was fixed for the operation; but, in the meantime, some domestic circumstance occurred which made it necessary that it should be postponed. Under these circumstances, I proposed to the patient that she should make the experiment of applying a stimulating embrocation to the surface of the skin. This accordingly was done, and the result was, that the tumour disappeared. Some time afterwards, another lady consulted me, having a globular tumour of one breast, larger than a pigeon's egg. I punctured it with a grooved needle, and a considerable quantity of serum was drawn off. In a few days, the fluid being reproduced, the tumour, which had wholly disappeared, was as large as ever. I now applied the same treatment as in the former case; and in the course of some weeks the whole of the fluid had become absorbed, and nothing was perceptible except a slight thickening, apparently formed by

the collapsed membrane of the cyst. The thickening disappeared gradually, and when I last saw the patient, five or six years after the time which I have mentioned, there had been no recurrence of the disease. Since these cases occurred, I have had recourse to the same method of treatment in a great many instances. In the majority of them the result has been, that the tumour or tumours have entirely disappeared; in others, that, without disappearing altogether, they have become very much reduced in size; and it is only in a few instances in which the treatment was not very rigidly pursued, that it has been productive of no manifest advantage.

The application which I have generally made use of on these occasions is the following:

℞ Spiritûs camphorati, Spiritûs tenuioris, āā. ℥ iijss.
Liquoris Plumbi Diacetatis, ℥j.
Fiat embrocatio.

I have directed the patient to soak a piece of flannel, once folded, in this embrocation, and to apply it so as to cover that part of the breast in which the tumour is situated, renewing the application six or eight times in the day and night, until the skin becomes inflamed; then to omit the application for two or three days, but to resume the use of it as soon as the inflammation has subsided. The period of time during which it is necessary to pursue this method of treatment varies in different cases. In some, all that can be desired is accomplished in the course of three or four weeks; in others, it must be continued, with occasional intermissions, for some months. Other stimulating applications may be occasionally substituted for that which I have just mentioned. Several blisters may be applied in succession; each of them being kept open for a few days with the savine cerate; or a solution of ʒj. of iodine in ℥j. of alcohol may be applied to the skin once or twice daily, by means of a large camel's hair brush. On the whole, however, I am led to believe that the embrocation is more efficient than anything else.

A question may here arise as to the modus operandi of these local applications. They do not seem to be of any service until

the inflammation on the surface of the skin has in some degree pervaded the substance of the breast itself; and hence I am led to suspect that they owe their efficacy to a new action being excited in the membrane of the cyst. My experience of what happens in cases of encysted hydrocele has led me to hesitate as to the injection of stimulants into the cyst, or the employment of any other very active means of exciting inflammation of it; and indeed, such a mode of treatment seems scarcely to be called for, as no small degree of inflammation sometimes follows the application of the stimulants externally. A lady had one of these tumours rather deeply seated in the breast. I punctured it with a grooved needle, and a considerable quantity of serum escaped. Whether it was that I took more trouble to squeeze out all the fluid contained in the cyst than usual, or that the embrocation applied afterwards excited more inflammation than usual, or that there was something peculiar in the state of the patient's constitution at the time, I do not know; but either from one or another of these causes, or from the whole of them combined, it so happened that a great degree of inflammation followed. The whole breast became swollen, tender, and painful, with no small degree of constitutional disturbance; suppuration of the cyst followed, and an abscess presented itself externally, which having been opened, continued to discharge matter for some time, and then gradually healed. The ultimate result was, that the induration consequent on the inflammation disappeared, and that no signs of the disease remained.

But such simple modes of treatment as are useful in the early stage of the disease are wholly inefficient after the growth of solid substance is begun. In this more advanced period of the disease, no good is to be expected, except from the removal of the entire breast; and such an operation may be had recourse to with every prospect of success.

The disease seems to be entirely local. It belongs to the breast, and to nothing else. It does not contaminate either the skin or the lymphatic glands; it is not complicated with any correspond-

ing disease of the viscera; and all the experience which I have had justifies the conclusion, that if care be taken that no portion of the breast be allowed to remain, we need not be apprehensive of its recurrence.

A careful observer will find little difficulty in distinguishing cases of this disease from those of the other diseases to which the breast is subject. It is, however, desirable, with a view to a more ready and accurate diagnosis, that we should consider what are the diseases with which it is most liable to be confounded. The principal of these are as follows:—

1st. A thin membranous cyst, containing a transparent watery fluid, without coagulable matter, is occasionally found in the breast, which may be compared to the membranous cysts containing pure water, which are sometimes met with in connexion with the liver (of which I have given an account elsewhere), and to the encysted hydrocele of the spermatic cord or testicle. This disease is probably rare, as only two examples of it have fallen under my observation. In one of them the cyst was extracted by an operation; in the other, the nature of the fluid having been ascertained by means of a puncture with a grooved needle, the tumour afterwards disappeared under the use of a stimulating embrocation.

2nd. A cavity is sometimes formed in the breast containing one or more genuine hydatids. Here there is a single fluctuating tumour which gradually increases to a large size. If it be freely opened the hydatids escape, and the cavity in which they were lodged becomes an abscess which slowly contracts and heals.

3rd. In a more advanced stage of the disease, it is not unfrequently mistaken for carcinoma; and I have no doubt that a large proportion of the cases in which it has been supposed that an operation has effected a permanent cure of the last-mentioned disease, have been in reality of this description.

The disease which I have been now describing is undoubtedly not malignant, in the proper acceptation of the term. It may go on to inflammation and ulceration, and the ulcer may spread and

slough and bleed, but it does not contaminate the constitution. Still, I am not prepared to say that it may not, under certain circumstances, and in peculiar constitutions, assume a malignant character; this being no more than may happen to almost any morbid growth. I may refer you to what I have said on another occasion, in reference to the malignant degeneration of the common fatty or steatomatous tumours; and also to my lectures on the diseases of the urinary organs, where you will find an account of a case in which the indurated deposit connected with a fistula in perineo was affected with carcinoma; and the patient died in consequence.

I have hitherto confined myself to the description of the origin, progress, and treatment of this disease of the breast, without venturing to give it a name.

It is, however, necessary that we should have the means of distinguishing it in conversation and in writing; and I would suggest 'the sero-cystic tumour of the breast' as being an appropriate appellation, preferable, at all events, to a mere arbitrary term; inasmuch as it expresses, with sufficient precision, the character which the tumour possesses in its origin.

ON VARICOSE VEINS AND ULCERS OF THE LEGS.

'MARY ANN RICHARDSON, 48 years of age, was admitted on the 11th of October with ulcers on the legs. She has a group of three ulcers, each about the size of a shilling, situated in the middle of the left leg, on the outer side, with livid edges and flabby granulations, slightly elevated above the level of the skin, and discharging pus tinged with blood. There is another ulcer, of the same size and description, but with small indolent granulations, above the inner malleolus. These ulcers are reported to have commenced each with a small pimple, followed by a superficial abrasion of the surface, discharging a watery fluid, and afterwards extending into an ulcer. There are cicatrices from previous ulcers on the leg, and also the appearance of some of them in the first stage of their formation. She has suffered from these ulcers for nine months, and for some years from varicose veins, of which there are clusters on both sides, and smaller ramifications of them over the limb. The skin of the lower two-thirds of the leg has a dark stained appearance, with a defined margin.'

This is a case in which there is no question about the patient's life or death, and I think it very probable that many among you may pass by the bed-side of such a patient without thinking it worthy of attention. But I am not disposed to regard it in this manner. Although the patient will not probably die of this disease, yet, without great care, it may render her miserable. The disease may be very much relieved by art, and it is one of very common occurrence. You examine carefully a case of aneurism, a case of stone in the bladder, and so on; but these are

things comparatively of rare occurrence, and which, at any rate, will not fall under your treatment in the beginning of your professional lives. But here is a case of a very distressing nature, and such a one as may meet you at every turn of your practice; and your reputation in early life will depend more upon understanding a case of this kind, than upon your knowledge of one of more rare occurrence.

I have no doubt that the ulcers of the leg in this case depend upon the varicose veins. These are what we call varicose ulcers. In order that you may understand this particular case, I shall make some general observations on varicose veins, and the ulcers to which they give rise. I shall first speak of the disease, then of the treatment required; and I shall leave you to apply the observations which I have to make to the case now before you.

By a varicose vein, I mean a vein which is unnaturally dilated. When there is increased growth of any part, the arteries increase in size to take the blood to it, and the veins increase in size to take the blood from it. This is a healthy increase of the veins, and we do not call these veins varicose. But by a varicose vein I mean a vein which has become preternaturally dilated, without the dilatation being instituted to answer any good purpose in the animal economy.

Varicose veins occur principally in three situations; in the legs; in the spermatic cord, where the disease is called varicocele or cirsocele; in the rectum, and about the anus, where the disease takes the name of piles, or hæmorrhoids. I will explain to you, by and by, why they occur in some situations more than in others.

all down the right arm, and to a considerable extent down the right side of the chest. He had difficulty of breathing, and cough. One day he felt as if he had received a blow on one side of the chest, and immediately a large abscess presented itself externally, as big as an orange, which had evidently made its way from the inside of the chest through one of the intercostal spaces. Immediately upon the appearance of this swelling, the varicose veins disappeared. The man died, and on examining the body after death, it was found that there was disease in the bronchial glands; suppuration had taken place in them, and a large abscess had been confined in the inside of the chest, which pressed on the right subclavian vein, and this caused the blood to stagnate in the veins in which it had its origin, and which had in consequence become varicose.

In another case, that of a private patient, whom I attended with Dr. Roots and Mr. Diamond, the superficial veins of the chest and upper extremities were extensively varicose, while the more urgent symptom was a great difficulty of respiration. The disease ended fatally; and on examining the body Mr. Diamond discovered a large medullary tumour within the chest, which, by its pressure on the lower part of the trachea and on the junction of the two subclavian veins, had obstructed at once the entrance of the air into the lungs and the return of the blood to the superior vena cava.

In the first of the three cases to which I have just referred, I have said that the varicose disease of the fore-arm was the consequence of inflammation and obliteration of the larger venous trunks, and such is sometimes the cause of varicose veins of the legs. There was a man in the hospital, with varicose veins of the legs. It was one of the worst cases of the kind that I ever met with. He had been, however, admitted into the hospital on account of another disease, of which he died. I examined the body after death, and found an obliteration of the external iliac vein. This vein had been inflamed at some former period, and had become converted into a thick hard cord. The blood could

not return to the heart through this venous trunk, and the consequence was that the branches below became varicose. Pressure on a venous trunk in the abdomen may produce the same effects, as may be often observed in a woman during pregnancy. When she has been brought to bed, and the pressure of the uterus is removed, the varicose veins in a great measure disappear. When she becomes pregnant again, the varicose veins recur; she brings forth another child, and they in a great measure subside, but not so completely as before. Every time she is pregnant the varicose disease of the veins becomes aggravated, till at last it exists to a great extent in both legs.

There are undoubtedly some cases in which we may trace varicose veins of the lower extremity to pressure or obliteration of the venous trunks; but in the majority of cases we cannot trace the disease to these sources. It appears to be the result of a mere weakness in the coats of the veins, rendering them incapable of supporting the weight of the column of blood between them and the heart. You will understand, then, why, when the coats of the veins are weak, persons of particular habits, or of a particular physical construction, are more liable to varicose veins of the legs than others. One who is always upon his legs, always standing or walking, is much more liable to have varicose veins of the legs than another who leads a more sedentary life, because there is here a column of blood almost always pressing on the veins below. Sir Everard Home has observed, that in the army the grenadier companies are especially subject to varicose veins, they being taller men than the other soldiers. Cooks are very subject to varicose veins, and the reason is plain. If you put one hand into warm water, and the other into cold, you know that the veins of the former will become dilated, and that those of the latter will contract.

But where the disposition to the disease exists, do all the veins become dilated? By no means. The deep-seated veins never become varicose, because there is the pressure of other organs upon them on every side, which prevents their dilatation. It is

only the superficial veins that are thus affected; especially the branches of the vena saphena major, but sometimes of the vena saphena posterior. But the valves do not increase with the dilatation of the vein; they remain of their original size. The consequence is, that the valves do not protect the venous branches below from the pressure of the column of blood above; that they do not answer the purpose of valves any longer; and the want of action in the valves tends, of course, to aggravate the disease. By and by the valves seem to become changed in structure; they are shrivelled, and become at last good for nothing, not even looking like valves. This is in conformity with a general law of the animal economy. A part which is not used wastes. If you were to tie up one eye, and cover it from the light for many years, you would find at last that you could not see with it. Muscles not used will waste; and so it is with all other organs.

In a few instances varicose dilatation of the veins comes on rather suddenly. I have known cases in which the veins in both legs became varicose immediately after very hard walking. But, in general, the disease comes on slowly, and increases gradually. At first one or two veins are a little dilated, and you see the dark blood of a blue colour through the skin. Then other veins assume the same appearance; and by and by you find clusters of varicose veins in different parts of the leg. The skin is elevated by the clusters underneath; and being stretched and rendered thin, it allows the dark colour of the blood to be seen through it. The varices are most frequently situated about the inner ankle, and the inner side of the leg; but they may occur anywhere else; at the back or outside of the limb. Then, as the disease proceeds, it extends to the trunk of the vena saphena major, which becomes dilated all the way up to the groin. Sometimes the saphena major is as large as your finger, assuming a knotted appearance; the explanation of which is, that varicose veins are not only increased in diameter, but in length, and of course must then be made tortuous; and where the saphena vein is twisted, as it were, upon itself, it assumes the appearance which I have mentioned. The

dilatation of it is perceptible when the patient stands erect; but when he lies down the varicose appearance vanishes, because then the vein becomes emptied of its blood.

While these changes take place in the condition of the veins, the patient experiences more or less inconvenience. Sometimes he suffers from a sense of itching and weight, especially about the inner ankle. The sense of weight and fulness becomes more troublesome when he takes a long walk, and is then, indeed, very distressing. Where there is a varicose cluster, there is in a few instances extraordinary pain, which, as I imagine, arises from there being some nervous filament pressed on by the tumour. Sometimes he complains of being subject to cramp in the muscles of the leg, especially after a long walk. Varicose clusters occasionally burst and bleed. I said, in the commencement of the lecture, that the disease is not dangerous, but that is not absolutely and universally correct. There are a few cases in which there is actual danger to life, from hæmorrhage. A varicose cluster becomes larger and larger; the skin over it becomes more attenuated; at last it gives way, and there is a discharge of blood. I have heard of patients actually dying from this hæmorrhage, where assistance could not be procured; and I have myself known instances of very large quantities of blood being lost in this manner.

Clusters of varicose veins sometimes become inflamed. They are then tender to the touch. Frequently the inflammation is preceded by a rigor, or by an attack of fever. In some instances the inflammation extends to the skin over the cluster. It becomes red; and if the patient stands up, the pain from the inflamed varix is aggravated, but if he lies down, it is in some measure relieved, but not entirely. The great pain in the erect posture is explained by the weight of the column of blood pressing on the tender parts.

In some cases inflammation of an inflamed varicose cluster will end in suppuration, the bursting of the abscess being followed by an ulcer. But that is not the way in which ulcers connected with

varicose veins generally begin. For the most part, the effect of inflammation of a varicose cluster is not to produce either abscess or ulcer. It is very remarkable that the blood in inflamed varicose veins coagulates, and they become choked up with the coagulum. There seems to be something in an inflamed vein that is unfavourable to the fluidity of the blood which it contains. You observe this not only when varicose veins of the legs are inflamed, but when veins are inflamed under other circumstances: as in a case of piles. A patient comes to you with an external pile, which is large, and very tender—it is inflamed. At first it contains fluid blood, but in a day or two it becomes filled with solid matter; and if you slit it open, you find a solid lump of dark-coloured fibrine. If you slit open an inflamed varicose cluster in the leg, under these circumstances, you will also find that the cavity is filled up in like manner with coagulated blood. I mention this, that you may know what takes place in these inflamed veins, not recommending the practice, which is quite wrong, as I shall explain by and by. The effect of such inflammation is to give the patient a good deal of pain at the time, but he is benefited by it afterwards. The coagulum fills up the vein, and the vein becomes obliterated. Other varicose clusters may appear afterwards, but this one is cured. So in the case of an inflamed pile, other piles may form, but the first is cured, and never troubles the patient again. By degrees the inflammation subsides; the coagulum becomes gradually absorbed; as the absorption proceeds, the sides of the vein approximate, and it assumes the appearance of a narrow cord.

In old cases of varicose veins, you will frequently find the skin become affected with a chronic inflammation; that is, it will look red, and be very irritable and tender. Sometimes the cuticle is as it were abraded, and an ichorous discharge takes place from the red cutis. Occasionally the whole of the skin of the leg is in this condition. In other cases there is a chronic inflammation of the cellular membrane. There is an effusion of serum into it, and the limb becomes œdematous. When there is disease of the

heart, preventing the due passage of the blood through its cavities, the fluid part of the blood is liable to escape from the capillary vessels, and thus you have anasarca of the legs. But the swelling which takes place in varicose veins does not exactly correspond to anasarca connected with disease of the heart. It is the result of an inflammatory action in the cellular membrane; and the fluid has a more distinctly serous character. If you puncture the parts with a needle, the fluid, being of greater consistence, does not flow out so rapidly as the thinner fluid which escapes after puncture in a case of anasarca.

The inflammation of the skin, and the inflammation of the cellular membrane, in these cases correspond with each other. There is an exudation of serum in one case from the surface of the skin, and in the other from that of the inflamed cellular membrane; and those inflammations are analogous to what we meet with in other cases of venous congestion.

But in some instances you find inflammation taking place of a different kind, in the cellular membrane, immediately surrounding the varicose cluster. The cellular membrane becomes infiltrated with coagulated lymph, so that the varicose cluster is, as it were, imbedded in a mass of solid substance. At first you would suppose that these veins are obliterated, but they are not so. The lymph which has been deposited becomes organised, and the coats of the vessels are thickened, but they remain pervious nevertheless, containing fluid blood, which may be perceived with the finger flowing freely through the gristly mass. Where there is this deposit of lymph in the cellular membrane round the vein, the skin becomes inflamed near it, and this may give rise to a troublesome ulcer.

The more usual history of a varicose ulcer, however, is as follows: The skin is distended at some point, and a scab forms upon it. When the scab comes off, there is an ulcer, and the ulcer spreads. The varicose ulcer, in most instances, begins about the inner ankle; but it may occur, as in the patient whose case is now before us, in other parts of the leg.

Varicose ulcers, in most cases, have a well-marked character, for which, however, you are not at this time to look in this patient, who has been confined to her bed for nearly a week. For the true character of varicose ulcers, you must examine the legs of a patient who has been walking about up to the time of your seeing him. Such ulcers are inclined to assume an oval form, the long diameter of the oval extending in the course of the vein upwards and downwards. They are generally nearly on a level with the surrounding skin. The surface of them is dark-coloured when the patient is erect, and when the small veins are filled with blood; but when the patient lies down, it becomes florid; the change taking place very speedily from dark to florid, and from florid to dark. The skin, and the margin of the ulcer, are generally of a dingy-red colour, and partly deprived of the cuticle, so that it is often difficult to say where the latter terminates and the ulcer begins. Varicose ulcers are generally very irritable and painful. If the patient be very much upon his feet they assume a foul and sloughy appearance, and not unfrequently are disposed to bleed.

Having enumerated the principal circumstances which deserve your notice respecting the history of varicose veins of the legs, I shall now offer to you some observations respecting the treatment to be employed.

Why is it that the superficial veins enlarge and not the others? Because, as I have already explained, the deep-seated veins have pressure made upon them on every side, but the superficial veins have not. The first thing for you to consider in the treatment is, whether you cannot in this respect put the superficial veins, which are dilated and varicose, under the same circumstances with the deep-seated veins. This may, indeed, be accomplished by applying a bandage to the leg. And what kind of bandage? In many cases where the disease is limited, you may apply merely a partial bandage of adhesive plaster, which will answer the

purpose perfectly, giving the patient scarcely any inconvenience. There being, for example, only two or three varicose clusters of small size, you need not trouble the patient with a complete bandage for the whole leg. Have some strips of adhesive plaster, three or four inches long, according to circumstances, and one inch or an inch and a half wide. First of all, let the patient stand erect, that you may ascertain exactly where the varicose clusters are situated. Having marked the place, let him recline, with the foot raised so that it may be the most elevated part of the whole body. Then the varix having been thus completely emptied, apply one of the pieces of adhesive plaster across the varicose vessels, and afterwards apply the others in the same manner, drawing up the skin under them, and taking care that the plaster is not thrown into folds. The plasters being applied in this manner, and being strained on the skin beneath, prevent the vein from becoming distended when the patient stands erect. In a great many instances you will find that this is sufficient to give all the support required; and perhaps it is all that will be required for the rest of the patient's life. A lady consulted me, formerly, with two or three varicose clusters on the inner ankle and on the back of the leg, but with no varicose veins of any consequence elsewhere. I put on some pieces of plaster in the manner which I have described. I mention this case only for this reason—that I recommended the treatment seven or eight years ago, and that lately, when she came to London to consult me on another disease, she told me that she had worn the plaster up to this time, that it had given her complete relief, and that she had never had occasion for anything else.

Where I recommend this use of the adhesive plaster, you will, of course, understand that other kinds of plaster than that to which this name is commonly applied, will answer the same purpose. In some cases of varicose veins the skin is irritated by the resin which the common adhesive plaster contains, and you may then substitute for it the red plaster (the emplastrum thuris or emplastrum roborans of the old dispensatories) with a small

admixture of soap-cerate; or, what is better still, the soap-plaster spread on the fungus or amadou used for the lighting of cigars. This was first recommended to me by Mr. Weatherfield; and it is very convenient, as, being to a certain degree elastic, it admits of being applied in a single piece, and makes a very uniform pressure.*

In those cases, however, in which the veins of the leg are extensively varicose, this partial compression will not be sufficient, and then you must apply a bandage for the whole leg. There are different kinds of bandages, and sometimes one sort will answer best, and sometimes another. You may use a common roller of coarse unbleached calico, such as we use in the hospital. In some persons you will find a flannel roller more convenient; at any rate the patient can apply it better for himself. In private practice I frequently recommend a bandage which is made of stocking web. This is very convenient, being easily applied, and making a very equal pressure; but it cannot be well used by the poorer classes of society, being more expensive in the first instance, and being also good for nothing after it has been washed a few times. There is another kind of bandage, made altogether of the Indiarubber or caoutchouc web, in the form of a roller; but it confines too much the heat of the legs; and, moreover, does not in most instances afford a sufficient support to the weak vessels.

I must here make a few observations respecting the use of the roller. It should be applied from the foot upwards. It need not be worn at night, when the patient is in the recumbent posture, but it should always be replaced as soon as he rises in the morning. Care should be taken that the heel is supported, as well as the rest of the foot; and that a moderate but equal pressure be made on the whole limb. Especially the pressure above ought not to be greater than that below; for in that case the veins below

* This plaster is sold by Mr. Weatherfield, in Henrietta Street, Covent Garden. It is useful on many other occasions, among which I mention those in which a protection is required for the parts subjected to pressure in bedridden patients.

must necessarily become distended. A tight garter increases varicose veins; and the patient ought to be told not to wear a garter at all, but to loop up his stocking. A bandage which is tighter above than below corresponds to a tight garter.

But some persons cannot well apply a bandage for themselves, and for them you may prescribe a laced stocking, which is in many respects very convenient. Those who are awkward in applying a bandage may manage the laced stocking very well for themselves. Laced stockings are made of various materials. The Chinese manufacture a calico called nanquin, which is a very good material for the purpose. Some laced stockings are now made *partly* of Indiarubber cloth, so that they are elastic. An ingenious artist in Jermyn Street makes a laced stocking of spiral wire, like the springs of braces, but of very fine texture, included between two folds of leather or something else. Whether you use spiral wire or caoutchouc, it is not necessary that the whole of the stocking should be made of the elastic substance; elasticity being required only in a part of the circumference. In most cases I find the caoutchouc cloth to be the best of these elastic materials. Patients complain of the elastic wire cloth being very hot; moreover it makes more pressure than is required, and the spiral wires not unfrequently break and prick the legs. In consequence of these objections, although this kind of bandage is very useful on many other occasions, I do not much recommend it in cases of varicose veins. With respect to the caoutchouc cloth, I ought not to omit this observation; although it is very useful where it forms only a portion of the circumference of a laced stocking, if it formed the whole of it, it would be liable to the same objection as the caoutchouc roller, namely, that of not affording sufficient support, especially in warm climates and in hot weather.

The foregoing observations relate to the general treatment of varicose veins, and of the simpler form of the disease. We are next to consider the treatment under peculiar circumstances.

Let us suppose, then, that you are called to a patient in whom there is a varicose cluster of veins in a state of inflammation. There

is a great deal of tenderness in the part, and perhaps some fever. The first thing you have to do is to keep the patient in bed, in the horizontal posture, so as to keep the veins emptied of their blood. Then, if there be much inflammation, and the patient suffers a good deal of pain, he may derive benefit from the local abstraction of blood. You may have recourse to leeches. Do not, however, apply them immediately over the veins; they should be applied higher up on the leg, on the sound skin. The bite of a leech over an inflamed vein will give the patient a good deal of pain, and the little wound will be difficult to heal. If you apply the leeches on the sound skin in the thigh or the upper part of the leg, you will relieve the varicose veins just as much as if you had applied them on the veins themselves, without giving the patient pain at the time or trouble afterwards. A compress wet with cold lotion may be laid on the varix, unless the pain be very great, in which case fomentations and poultices may be had recourse to instead.

When inflamed varicose veins are distended with coagulum, it used to be the practice formerly to slit open the vein and turn out the coagulum; but this is not the treatment that I should recommend. It is, in fact, very bad practice; and in order to impress this observation the more upon your minds I will mention a particular case, which I found this morning in looking over one of my old case books. It occurred upwards of twenty years ago. A patient was admitted into the hospital with two or three large clusters of varicose veins. They were all in a state of inflammation; but the inflammation was greatest in the upper one. The patient said that she had had the disease for some years, but that about a week before her admission she had stood for a long time upon a stone floor, on a cold damp day. She went to bed, and had a shivering, which was followed by fever, and then this attack of inflammation of the veins took place. I could feel that the blood had become coagulated. I slit open the upper varix and let out the coagulum; but the varices below were treated with cold lotion, or in some other simple way. Under this treatment the

inflammation very soon subsided in the varicose clusters below, the absorption of coagulated blood began to take place, and they were speedily cured. But observe what happened in the varix which I had punctured. The puncture became an ulcer which would not heal. At the end of six weeks when the other clusters were well, there was a bad sore here. I was obliged to make a slough with caustic potash, which I suppose destroyed the remains of the vein which had been laid open. The slough came away, the sore assumed a healthy character and got well, but certainly the patient would have been well some six or eight weeks sooner, if I had pursued the same practice with the upper varix which I adopted with the lower ones.

The treatment then of these clusters of inflamed varicose veins should be as follows; lay the patient in bed; put a cold lotion on the part, or fomentation and poultices if you find these to be more comfortable to the patient; administer purgatives according to circumstances; and if there be much inflammation, but not otherwise, apply leeches to the sound parts above. Nothing further is necessary for their cure.

In those cases, in which from long neglect of varicose veins the skin of the legs has become inflamed, you will be able to render the patient no service so long as he is going about, standing, and walking as usual. The first thing to be done is to confine him to his sofa, or, what is still better, to his bed, so that he may never quit the horizontal posture, and that the blood may never have to flow in the veins against its own gravity. In some instances nothing more than this is required; but in others mere rest will afford but very slow relief, and in all cases you may hasten the patient's recovery by combining with it other methods of treatment.

I have frequently, in these cases, bled the patient in the vena saphena major, in the lower part of the thigh, near the inner condyle; and it is astonishing what relief this gives. It is not worth while to adopt this practice in all cases, but where you find the patient suffering more than usual from the inflamed state of the skin you may very properly have recourse to it.

Bleeding in the vena saphena major is performed very easily in persons who are not very fat; place a ligature round the lower part of the thigh, let the patient put his leg into a pail of warm water, and, between the warm water below and the ligature above, the vena saphena becomes distended; you then open it with a lancet, and take away any quantity of blood you please. But, in a very fat person, bleeding from the vena saphena is not very easy to be accomplished; and as a substitute for it you may apply leeches to the inside of the thigh. You may also apply them in this situation in other cases in which you do not think that actual bleeding in the vena saphena is required. And here I must repeat what I said respecting the application of leeches in my last lecture. Never apply them over the inflamed part, but always at some distance above it. If the whole skin of the leg be inflamed, then apply them on the inside of the thigh; if the leg be inflamed in the lower part and not in the upper, then apply them in the leg, but above the inflammation. Besides the application of leeches, you may, in the first instance, apply a rag, wetted with cold spirituous or saturnine lotion. When the inflammation of the skin has subsided, you may begin the use of bandages in the way which I described in the last lecture.

In some cases, as I formerly told you, the skin is not only inflamed, but more or less excoriated, the cuticle being abraded to a greater or less extent, while the surface of the cutis secretes an ichorous fluid. Here, also, you may take away blood from the vena saphena major, or from the inside of the thigh by leeches. The patient will also derive benefit in some cases from the application of a saturnine lotion, while in others some mild cerate answers the purpose better. The zinc ointment, or calamine cerate, answers very well; but we use in the hospital a preparation known with us by the name of compound lead ointment, which is much preferable. It is an excellent application in these, and other cases where the surface of the cutis is deprived of the cuticle. This ointment was invented by Dr. Kirkland, a celebrated practitioner many years ago in Leicestershire, and it has

been long known under the name of Kirkland's neutral cerate. It is composed of diachylon plaster, olive oil, chalk, and distilled vinegar. How it should have occurred to any one to make such a composition as this I do not know, but the composition having been invented, I must say it is a very useful one. The ointment should be spread on linen rag, and applied in strips round the leg, each strip overlapping the one below. In some cases, in addition to the use of the compound lead ointment, you will find advantage from washing the surface with a solution of nitrate of silver, in the proportion of two grains to an ounce of rose water. A strong solution would here be improper, while a weak solution is useful.

I told you that in some cases there is œdema, or swelling of the leg and foot, in consequence of the inflammation of the cellular membrane causing it to be infiltrated with coagulated lymph and serum. The treatment that is required under these circumstances is very nearly the same as that which is necessary where there is the mere superficial inflammation of which I have just spoken. The patient should be kept in the horizontal posture; blood may be taken either from the vena saphena major, or by leeches from the thigh, and generally you will find the latter quite sufficient. You may apply a cold lotion in the first instance, but very soon you should begin to apply a bandage, such as will give a uniform support to the leg from the toes to the knee.

In some cases in which the cellular membrane has become infiltfated with serum to such an extent as to cause more than ordinary swelling of the limb, and tension of the integuments, some immediate relief may be obtained by making punctures with a needle (a common worsted needle is the best) as in cases of anasarca. As, however, I have already observed, the fluid, being serum, and the result of inflammation, is different from that of anasarca. It flows less freely, and the relief which this practice affords is only temporary, unless other means are combined with it.

In cases of varicose ulcers of the leg, if you find that the patient has neglected himself, that the ulcer is in a state of inflammation, foul and painful, as it often is, the surrounding skin being in a

state of inflammation also, you must keep him in bed, and treat him as if the leg were inflamed without the existence of the ulcer. In one case you may find it convenient to apply a bread-and-water poultice; in another, lint soaked in water with some oiled silk over it; and in another the unguentum elemi compositum, or some ointment of the same kind, plain or diluted. But as soon as the inflammation of the ulcer and the surrounding parts has been relieved, you may begin the application of pressure. The pressure of a common roller will do a great deal of good, and formerly nothing else was recommended. But we find now, that in cases of varicose ulcer, as in cases of indolent ulcer of the leg, you may very much assist the common roller by the addition of other means. One very good way of making pressure on a varicose ulcer is to interpose between it and the bandage a piece of sheet lead, such as is used in anatomical museums for covering preparations. The lead should be made quite smooth, and larger than the ulcer, so as to extend beyond its margin. This makes a very uniform pressure and really does very well. But for the most part, we are in the habit of using pressure by means of plaster applied in a circular manner round the limb. It is common to employ strips of linen spread with soap or adhesive plaster; but on the whole the diachylon plaster is to be preferred, for both soap-plaster and adhesive plaster will at times irritate the skin, and bring on inflammation and pustules, while diachylon plaster scarcely ever produces this effect. In some cases it is desirable to employ only a very moderate degree of pressure in the first instance; and on these occasions you will find a mixture, of one part of spermaceti cerate to three parts of the diachylon, to answer the intended purpose. It may be spread on calico, cut in strips, and applied in the usual manner.

You have an opportunity of seeing strips of diachylon plaster applied over and over again every day in the wards of the hospital; and, therefore, it might seem almost superfluous for me to make any observations on the mode of applying them. Still as I find that new dressers very seldom apply them in the manner that I believe

to be most useful, I shall offer to you some observations on the subject, which may, at all events, be useful to the junior students.

The strips, previously warmed, should be applied round the limb, the two ends crossing each other in front, the application beginning below the ulcer, and extending some way above it. Each of the strips ought to overlap the one below by one half of ts diameter. Thus every part has a double piece of plaster over it and you secure more equal pressure than you could otherwise obtain. It is of great consequence that the plaster should be tight enough to give comfortable support to the limb, and at the same time not so tight as to make the limb swell below; for if it should produce this effect, it is very likely that it will bring on a sloughing of the sore. The plasters ought to make uniform pressure; that is, the pressure should be equal throughout; or if there be any difference in the degree of pressure, it ought to be greater below than above. If you do not attend to this point, the plaster above operates as a tight garter, and does harm instead of good to the lower part of the ulcer.

When you apply the plaster, it should always be with the heel raised, the patient lying flat on his back, so that the vessels of the leg may be emptied of their blood. If the leg be hanging down at the time of the plaster being applied, the veins are full of blood, and the plaster becomes loose as soon as the foot is raised.

The plaster, if there be much discharge, should be changed daily; but as the discharge becomes less in quantity, it may be changed every other day, or once in three days, and in some cases even less frequently than this.

Frequently, in cases of varicose ulcer, the veins on each side of the leg, just above the heel, and behind the ankles, are formed into a varicose cluster. A bandage applied in the common manner does not sufficiently support these veins. The ulcer may be above, and you may cover it with a bandage; but if there be such veins as I have mentioned below, you must not, for obvious reasons, leave them uncovered. In this case some strips of plaster

should be applied round the lower part of the heel, extending upwards in a longitudinal direction on each side of the leg, and secured by circular strips placed over them at the upper part. In the application of the bandage, you ought to pursue the same course: a longitudinal bandage, extending under the heel and up each side of the leg, should be applied first, and the circular bandage afterwards. These may appear matters of little importance, but a great deal of your success in practice, not only in these but in other cases, will depend on attention to such minutiæ. It is not enough to understand the nature of a disease, to make a good diagnosis, and to know what remedies are to be employed; you should also take pains to apply these remedies in the best possible manner, otherwise they may fail in producing their effect. In some cases of varicose ulcer you will promote the healing of the ulcer by touching it every other day with a strong solution of nitrate of silver in water, beginning with five or six grains to an ounce, and increasing the strength gradually. But I do not advise you, as a general rule, to make any application in the way of dressing under the plaster. I find a young dresser frequently interposing a piece of lint, with or without simple ointment, between the plaster and the sore. It is a very injurious practice; it keeps the sore slopped with its own discharge; and it prevents the plaster from making that uniform and regular pressure which is required. When the sore is healed, the patient should continue to wear the plaster for *some time* afterwards, otherwise the cicatrix will give way; and for the same reason he should *ever* afterwards wear the bandage.

Other methods of treating patients labouring under varicose veins have been proposed by surgeons in former times, and also of late years. I need not carry you back to the practice of Celsus in these cases, nor even to that of Heister. I shall only speak to you of methods that have been suggested within the last thirty or forty years.

Sir Everard Home recommended the application of a ligature, where the veins of the leg were varicose, to the vena saphena

major. He performed this operation in a great number of cases, and in a few cases he applied it to the vena saphena minor. When I was a student, nothing was more common than to see a patient with varicose veins standing on a table, and leaning over the back of a chair, for the purpose of undergoing the operation. The skin was divided; a silver needle, with a ligature, was passed under the vein, and the vein was tied. In many instances, at first, no ill consequences ensued; but by and by a private patient of Sir Everard Home became affected with venous inflammation and died. The same thing then occurred in another patient. When I was house-surgeon here, there were two women on whom the operation was performed, in each of whom venous inflammation, attended by typhoid symptoms, supervened. Fortunately they did not die, but they certainly had a very narrow escape. The operation was performed by other surgeons, and in their hands also it was found that every now and then venous inflammation was induced, which ended fatally; and it was then very generally abandoned. Mr. Abernethy remarked:—'I dare say it is only the ligature that brings on the inflammation. You divide veins when you amputate, and they do not become inflamed; why should you not merely cut across the vena saphena, and put on pressure?' He was mistaken in his view of the subject, which was not indeed much understood by surgeons at that time. We now know that veins after amputation not unfrequently inflame, and that this is one of the causes of death after amputation. When I was first assistant surgeon, there was a man with very bad varicose veins; such a case as those in which the vena saphena would formerly have been tied. I did not tie it, however; but I followed Mr. Abernethy's advice, cutting it across, and applying a compress and bandage. The patient had venous inflammation, attended with very severe typhoid symptoms, and died within four days after the operation. Since then, as you may suppose, no operation has been performed on the vena saphena, either by ligature or in any other way. There are indeed no circumstances here to justify the

performance of a dangerous operation.* You may perform such operations to get rid of a disease still more dangerous, but you have no right to perform an operation attended with such a degree of danger as can be appreciated, in order to get rid of a disease which is not dangerous; and no one can say that varicose veins belong to the class of dangerous diseases. But still there is another reason against having recourse to this operation. I do not believe, from what I have formerly seen, that it permanently benefits the patients. It is true that they appeared to go out of the hospital much relieved; but where I had the opportunity of seeing them one or two years afterwards, I always found them as bad as ever. Indeed I am by no means certain that the benefit which the patients appeared to derive, in the first instance, was the result of the operation; and I am more inclined to believe that it arose from their having been necessarily kept for some time in bed in the horizontal posture. Patients with varicose veins always seem to improve under these circumstances. But I may observe, further, that there appears to be no reason why, in ordinary cases of varicose veins, the obliteration of the saphena should do any good, and that there are better grounds for believing that it will do harm. I have already explained to you that pressure on large venous trunks causes an obstruction of the blood in passing through them,

* The practical inconveniences which followed the mode of operating here described, arose from subcutaneous effusion of blood, and from the absorption of the diseased secretions of the part through the open mouths of the divided veins. The blood effused would occasionally undergo certain morbid changes, which were followed by irritation in the surrounding structures, often having an erysipelatous character. The absorption of any portion of the altered blood, or of the diseased secretions in the neighbourhood, would produce the well-known symptoms of blood-poisoning. Both these sources of danger are obviated by the operation devised by Mr. Henry Lee. In this operation the vein is compressed at two points before it is divided, by means of needles passed under the vessel. Effusion of blood and absorption through the open mouths of the veins are thus alike prevented. The acupressure is maintained until the divided extremities of the vein are closed, and, when properly executed, this operation may now be done without the ill-consequences that followed it as formerly performed.—C. H.

and that this is one common cause of varices. In *very bad cases*, however, of the disease, I can understand why the patient should derive benefit from the ligature of the principal vein. To explain this, I must first call your attention to the different condition of the parts where the veins are very much dilated, and where the disease has proceeded only to a limited extent.

If the veins are but little dilated, or dilated only in particular places, the valves will still continue to answer the purpose for which they are designed. If the vena saphena be not at all dilated, while the smaller veins of the leg are dilated, the valves of the vena saphena act perfectly, and take off the weight of the column of blood pressing on the veins below; but if the vena saphena be itself considerably dilated, its valves are of course rendered inefficient. Now observe the result of this. I had a patient in whom there was an unusually large cluster of varicose veins on the inside of the leg, while the vena saphena major was of enormous diameter, so that the valves were evidently good for nothing. If I put on a bandage and squeezed the blood out of the veins below, and then put my thumb on the vena saphena above, so as to stop the circulation through it, I found, on taking off the bandage, the patient being in the erect posture, that the cluster of veins below filled very slowly, and only from the capillary vessels. But if, the patient being in the erect posture, I removed the pressure from the vein, the valves being of no use, the blood rushed downwards by its own weight, contrary to the course of the circulation, and filled the varicose cluster below almost instantaneously. I can understand that a ligature upon the vena saphena, under these circumstances, would in a great degree lessen the inconvenience arising from the distension of the varicose veins below. It would answer the same purpose as the pressure of my thumb, but still it is not to be supposed that the good thus obtained would be permanent, or that it would be sufficient to counterbalance the chance of mischief resulting from the operation.

I was occupied, many years ago, in making experiments on the

obliteration, not of the vena saphena, but of the varices themselves. I applied the caustic potash so as to penetrate through the skin to the veins below, and in this way I cured varicose ulcers. Mr. Mayo has, as I have been informed, employed the same practice lately, with this difference: he has applied the caustic not so as to make a slough of the vein, but so as to bring on sufficient inflammation to cause it to become obliterated. The result of my own experiments with the caustic may be told in very few words. The application of it was very painful; the slough took a long time to separate; the sore took a long time to heal; and where one cluster was cured, other clusters appeared. Altogether it was a very tedious process, and my own experience does not lead me to recommend it.

Then I contrived another method. Though there is danger in cutting across large veins, or in tying them, there does not appear to be any danger which can be appreciated from the ligature of smaller veins. Piles are nothing originally but varicose veins. Now I have performed operations for internal piles, I cannot tell you how often, for there is nothing in the practice of surgery more common, and can testify that it is a very rare thing to have venous inflammation arising in consequence.

We frequently cut across small veins in operations, and they are divided by accident, but we scarcely ever find venous inflammation supervening. Although there may be danger from operations on the vena saphena, we have no right to expect danger from operations on its smaller branches. My plan was as follows. Supposing that I intended to cure a particular cluster of veins, I used a sharp-pointed and very narrow bistoury, which cuts, not like a common bistoury, on the concave, but on the convex edge. I punctured the skin with this instrument on one side of the varicose cluster; carried the blade under the skin, between it and the varicose veins, over to the other side; and having carefully performed this part of the operation, the skin remaining entire, except where the first puncture was made, I turned the edge of the instrument backwards, and, drawing it out, cut across the

varicose cluster. A good deal of hæmorrhage follows, but the pressure of a compress at once commanded it, and a bandage was applied afterwards. The wound, in most instances, healed by the first intention. The varicose veins were obliterated, and usually in a few days the patient suffered no inconvenience from the operation. However, in some cases, the wound suppurated, instead of healing by the first intention, which protracted the cure. In some instances in which I had recourse to this operation, a remarkable occurrence took place. Although I was satisfied that the cluster was divided, the disease was not cured. It seemed as if the veins healed without becoming obliterated. As the ductus choledochus, or the intestinal canal, will heal after the application of a ligature, without the continuity of the canal being destroyed, so it appears to be with divided veins under certain circumstances.

I published in the 'Medico-Chirurgical Transactions' an account of this operation, in the year 1817,* and I believe that it affords the first example of the subcutaneous operation which is now so successfully employed in other cases. As applied to varicose veins the operation is as easy and as safe as it is on other occasions, yet I scarcely ever have recourse to it now. With my present experience, it really appears to me that in ordinary cases it is not worth the patient's while to submit to it, as I always observed that, if I cured one cluster, two smaller ones appeared, one on each side, and that, ultimately, I left the patient no better than I found him.

The operation, however, is proper where there is a varicose cluster much distended and liable to burst and bleed. Here you may actually save the patient's life by having recourse to it; and you may do so without considering whether fresh clusters are or are not likely to form afterwards. Sometimes when there is a varicose cluster above or below, on which a varicose ulcer depends, you cause the ulcer to heal, sooner than it otherwise would, by dividing the cluster. In such cases I observe that it generally

* See page 11, in this Volume.

heals sooner if you divide the cluster below, than if you divide the cluster above. Then there are some cases where a varicose cluster is productive of an unusual quantity of pain, apparently in consequence of there being a nervous filament lying over it which is kept on the stretch. And here you may relieve the patient from the pain of this particular varix by the division of it. But these occasions are of rare occurrence; and under other circumstances I repeat that it is not worth the while of any patient to submit to the operation.

I ought not to take leave of the subject which is before us, without referring to a very ingenious method of obliterating varicose veins, which has been lately adopted by M. Velpeau, of Paris. He introduces a pin or needle through the skin, which is passed underneath the vein, and at right angles to it. A twisted suture is then applied round the two ends of the pin, so as to compress the vein sufficiently to produce its obliteration. I cannot from my own experience of this practice say anything of its advantages or disadvantages; but I must acknowledge that it seems not improbable that it may be preferable to the other methods of which I have given you a description. Still, the observations which I have made as to the other methods apply equally to this. It may be useful in certain cases, and under peculiar circumstances; but I can see no reason to believe that you would be justified in having recourse to it on ordinary occasions.

ON THE CASES OF SCIRRHOUS TUMOURS OF THE BREAST WHICH REQUIRE AN OPERATION.

If a scirrhous tumour of the female breast be left to take its own course, it gradually increases in extent; it contaminates the neighbouring textures; it finally ulcerates, and in the greater number of cases the patient's life is terminated in three or four years from the commencement of the disease. Not only is life terminated thus early, but death is preceded by a most painful state of the ulcer. It is disposed to bleed and to slough, and the patient is rendered miserable. There is not a much worse way of going out of the world than that of being destroyed by this disease.

Looking at these facts alone, you would say that there is no doubt that the proper thing to do is to remove the tumour by an operation. But then there is another order of facts to be taken into account. We find that in the larger proportion of cases in which the operation is performed, the patient is not alive two or three years afterwards; and in a great many cases, instead of the operation stopping the disease, it actually seems to hasten its

any circumstances; whereas I have known other very experienced surgeons who were in favour of an operation, even in the great majority of cases. And not only has there been this difference of opinion between different individuals, but I have known the opinion of the same individual to differ at different periods. I remember a surgeon, whom I esteem as a great master of his art, saying that he had almost determined that he would never perform this operation again; and yet that very surgeon, some three years afterwards, recommended the operation in a case in which I thought that it would fail. This discordance of opinion only shows the difficulty of the subject; and if this difficulty has stood in the way of men of great experience, it may well stand in the way of you who are beginning your career. Hence, it appears to me that it may be of advantage to you if I offer some observations on the subject, and endeavour, as far as I can, to clear away the doubts which may arise in your minds as to the expediency or the inexpediency of the operation.

This, then, is the subject of the present lecture:—Under what circumstances is the operation for the removal of a scirrhous tumour of the breast proper, and under what circumstances is it improper?

I should observe here, in the first instance, that while a great deal depends upon the nature of the case, something will depend upon yourselves, and upon the mode of performing the operation. If there be a scirrhous tumour imbedded in the gland of the breast, and you remove the tumour and a piece of the breast in which it is imbedded, and leave the rest of the breast, according to my experience the disease will certainly return; and this corresponds to a rule which applies to all cases of malignant disease—that you have no security from an operation for its removal, unless you remove the whole of the organ in which the disease is seated. If, for instance, there be fungus hæmatodes of the bone of the leg, the patient may have some chance of doing well if you amputate the thigh above the knee; while, if there be malignant disease of the femur, he has almost no chance, unless, indeed,

you think it worth while to take out the bone at the hip-joint. I say, therefore, that in cases of scirrhous tumour of the breast, where the tumour is actually imbedded in the breast, if you perform the operation you must remove the whole of the breast. You may imagine that this is a very easy thing to be done, but it is not so easy in reality; for in amputating the breast, you will be very apt, in a thin person, if you are not very careful, to leave small slices of the gland of the breast adhering to the skin, and I have no doubt that the part or parts thus left behind in some cases have formed the nidus of future disease. The colour of the gland of the breast is very little different from that of the surrounding adeps; and the blood that flows adds to the difficulty of distinguishing between them. To avoid this error, you must be careful in the dissection to keep the knife near the skin, not near the breast; and, further than this, in every case when you have removed the breast, you should look at its surface, and see that it is everywhere covered by healthy adeps. If it be not, then examine the inside of the flap of the skin, and see whether any small portion of the breast has been allowed to remain there.

So far, I say, the success of the operation may depend mainly on yourselves; but now let us consider what are the circumstances, independently of anything that you do, that may lead you to think there is no chance of the operation leading to an ultimate cure; and what are the circumstances that would lead you to hope that the result may be more favourable?

You may divide scirrhous tumours of the breast into two classes: one where there is a conversion of the gland of the breast itself into the scirrhous structure, there being no well-defined margin to it; the other, where there is a scirrhous tumour imbedded in what appears to be otherwise a healthy breast, as if it were altogether a new growth, there being a well-defined boundary to it.

In the first order of cases, where the tumour has no distinct boundary, and where there is a conversion of the gland of the breast into the diseased structure, the operation not only never succeeds in making a permanent cure, but it rather hastens the progress of the disease. The patient dies within two or three years,

and probably much sooner, from an effusion of fluid into the cavity of the pleura.

In another order of cases, where the skin is contaminated, there is no chance of the operation making an ultimate or permanent cure. The skin may be contaminated in different ways. Scirrhous tubercles sometimes form in it here and there at some distance round the tumour, the intermediate portions of the skin appearing to be healthy. Here an operation will never lead to a cure, for experience shows that you can never remove the whole of the contaminated skin. The line of the incision may be quite beyond the tubercles which have already shown themselves; but other tubercles will show themselves afterwards. In these cases, whether an operation be had recourse to or not, the progress of the disease is always very rapid, the immediate cause of death being, in the majority of them, an effusion of serum into the chest.

But the skin is often contaminated in another manner. It is thickened and brawny, the pores seem enlarged, as if you were looking at them through a magnifying glass, and you cannot pinch it up between your fingers as you can healthy skin. This is a very bad form of scirrhus. I have known the operation performed in two or three such cases, and the disease has always immediately returned in the cicatrix, the operation appearing to hasten rather than to retard the fatal result. It does not matter how small an extent of skin appears to be thus contaminated; if any portion of it be in this state, the seeds of the disease are in the skin in the neighbourhood, and the knife divides what is apparently healthy but what is not healthy in reality.

A scirrhous tumour of the breast not unfrequently causes a contraction of the lactiferous tubes which pass from the various parts of the breast to the nipple; and this contraction necessarily causes a drawing in or retraction of the nipple. The retraction of the nipple is to be regarded as an unfavourable symptom. There is danger of the disease having extended from the nipple to the skin in the neighbourhood; and an operation ought not to be had recourse to until by a careful examination it has been ascertained that the skin does not appear to be otherwise than in a healthy state.

In many cases of scirrhous tumours of the breast, the skin is drawn, or tucked, in, over the tumour, so as to produce the appearance of a dimple in it. Where this dimple in the skin exists you may be almost sure that there is a scirrhous tumour in the breast beneath it, and on examination you will feel it with the finger. I believe this dimple of the skin to form a very great objection to the operation, and that, under these circumstances, there is little or no chance of it leading to a permanent cure. But on what does this appearance depend? In a case which I dissected very carefully I found a narrow process or elongation of the disease, perhaps half an inch in length, passing from the tumour through the adeps into the skin, and connecting the skin and the tumour to each other. In fact, the dimple indicates that the disease is not confined to the breast, but that the skin is already contaminated.

Then, as the disease goes on, it contaminates the glands in the axilla. The glands in the axilla, if the breast be inflamed, may be inflamed and enlarged as glands may be inflamed and enlarged from a boil or other inflammation in the neighbourhood. But when there are indurated glands of the axilla, independently of inflammation, you may be sure that there is the same disease in them that there is in the breast, and that no ultimate cure is to be expected.

You may say, 'But why not remove the diseased glands from the axilla?' I have done this, and seen it done, and I will tell you what invariably happens. Perhaps you have discovered only one enlarged gland in the axilla; you have determined to remove it; but when you have made an incision into the axilla, you find other glands affected in the same manner, though of too small a size to have been perceptible through the skin before the incision was made.

I need scarcely tell you that if the scirrhous tumour adheres to the parts below, that is, to the pectoral muscle or ribs, or if the skin be ulcerated, there is no chance of a permanent cure from the operation. You will find patients sometimes, who, while they have a scirrhous tumour in the breast, have indications of the

same, or some other, form of malignant disease, in other organs. In one you have reason to believe that there is malignant disease of the liver; in another of the lungs; in another of the uterus. Of course, if there be any suspicion of the same mischief going on elsewhere, you will know that no permanent cure is to be expected from the removal of the diseased breast.

These circumstances, then, are sufficient to forbid an operation with a view to an ultimate cure. But you must also take into account the age of the patient, and condition in other respects. For instance, if an old woman has a scirrhous breast in a quiet state, you would never think of amputating it, because she may die before there is an alteration for the worse. The disease may outlast her.

Now, having taken away these cases, you will find in practice that there are very few left in which you will think it right to propose an operation, as affording a chance of permanent cure. What are the cases, then, in which the removal of the breast is proper? Where on a careful examination no appearance of disease can be detected in the skin; where there is no dimple in the skin over the tumour; where there is no diseased gland in the axilla; where there is no sign of internal mischief; where there is no adhesion of the breast to the parts below; and where the patient is not very much advanced in life;—in a case where this fortunate combination of circumstances exists, we may presume that there is a reasonable chance of an operation being successful.

Still, I must not be misunderstood as saying that in every one of such cases there will be a permanent cure; nor do I say more than this, that the chance of a cure is sufficient to warrant you in recommending the patient to submit to an operation; and that I have the satisfaction of knowing several persons on whom I have performed the operation under these circumstances, who are now alive and well, and who otherwise would certainly have been dead long ago. So long since as 1832, I removed a breast affected with a scirrhous tumour, and the lady is still in good health—at least she was so last year. Since the operation she has married and

had children. Last year I was called to see a lady on account of another complaint, on whom I performed the operation thirteen years ago, and found that she continued free from the old disease; and very lately I have heard of another lady whose scirrhous breast I removed six years ago, and who continues well.

But besides such cases as these which I have just described, there are others in which the operation for a scirrhous tumour connected with the breast may be performed with a still better prospect of success. A hard tumour sometimes forms on the surface of the breast, which feels like scirrhus, and on cutting into it, it looks like it; so that I can give the disease no other name. It appears to be unconnected with the breast; but when you remove it, you find that it is attached to the surface of the gland, just at one narrow corner. I have removed three tumours of this kind, leaving the breast untouched, except where I separated the tumour from it; and in each of these three cases I learned that the patient continued well a considerable time afterwards. Indeed, I do not know that in any one of them there has been a return of the disease.

Again, a scirrhous tumour may occur in the nipple; and I believe that this may properly be distinguished from a scirrhous tumour of the breast itself, and that there is a greater chance of a permanent cure from an operation where the disease originates in the nipple, than where it originates in the breast. There was a lady who had such a tumour of the nipple. She consulted several surgeons about it; and as the disease was in a quiet state, it was recommended that it should be let alone. After some time she came to London, and was under the care of the late Mr. Rose, who was a surgeon of this hospital; and I saw her with him. The tumour was still confined to the nipple, and had been going on for some years without coming to any harm; but it was now making progress. The result of the consultation was, that Mr. Rose removed the breast, which appeared sound, the disease being confined to the nipple, and its immediate vicinity. She recovered, and I have reason to believe that the cure was permanent.

Another lady consulted me concerning a scirrhous tumour of the nipple; for so I call it, as it was of a stony hardness, and presented the usual characters of that disease. The tumour was in a state of ulceration. She was a stout elderly lady, with an enormous breast, and a great deal of adeps over it. The removal of the whole breast would have been a frightful operation, and it is probable that her constitution would have sunk under it. I applied the chloride of zinc, and afterwards the caustic potash, till I destroyed what appeared to be the whole of the disease. This was three or four years ago. The wound healed, and the patient is well at this moment. The two last orders of cases are, then, to be especially distinguished from those of which I have spoken formerly.

But here another question arises, Is there no other reason for performing the operation for the removal of a scirrhous tumour of the breast, than the hope of making a permanent cure? May it not be worth while to resort to it sometimes, merely with a view to give the patient a respite; to relieve her from present suffering, or with a view to prolong life for a limited period? Undoubtedly it is; and I will mention to you some cases illustrative of this observation. There was a lady about 40 years of age, who had a scirrhous tumour of the breast, and there was a cluster of diseased glands in the axilla. When she came to me the skin over the tumour appeared to be on the point of ulceration, so that the disease was going on to great mischief. I said to her, 'I do not believe that the operation will make a cure, and I cannot recommend it.' She asked whether I had anything better to offer, and I could not say that I had. She went away, but in two or three weeks came again. She then said that she had consulted two or three other surgeons (whose names she mentioned), and found that they were all of the same opinion. But she added, 'I now come to beg a favour of you; and that is, that in spite of these opinions you will remove the breast.' I asked what her reasons were, and she said, 'I am in these circumstances: I have a daughter 18 years of age, an only child. I know that I shall not

survive very long; but it is a great object to my daughter that I should live to be her friend and adviser for two years longer. It is for this reason, and this only, that I wish to take the chance of an operation.' There was no withstanding such an appeal as this, and I removed the breast, but without interfering with the glands in the axilla. There was no distinct return of the disease in the cicatrix, and the glands in the axilla did not greatly enlarge; but at the end of two years she was seized with symptoms of disease in the chest; there was an effusion of fluid into the pleuræ; and she died. (I may take this opportunity of mentioning that this is the most common way in which scirrhous tumours terminate life. Very small scirrhous tubercles form in the lungs, and these are followed by an effusion of fluid into one or both of the pleuræ.)

There was a lady who applied to me with a scirrhous tumour of the breast. It was small, and so also was the breast; and I should have recommended the operation, but that there were two or three hard and large glands in the axilla. I said to her, 'You have not much suffering; I cannot recommend an operation; let it alone.' A year after she came to London again. The tumour had now ulcerated, the glands had much increased, the ulcer produced excessive suffering, which made her life miserable. I did not remove the tumour with the knife, but I applied the chloride of zinc, and destroyed it thus. The sore healed. Some seven or eight months afterwards a tubercle had formed in the cicatrix, which ulcerated like the former one, and I destroyed this in the same manner. She was enabled to go on with great comfort, in fact suffering but very little, except at the time when the chloride of zinc was applied. At last, after the lapse of a year and a half, disease was established in the lungs, effusion took place into the pleuræ, and in this manner she died. There was a lady who had a large malignant tumour of the breast; it was not exactly scirrhous, but approaching to it in its character; and I did not think that an operation would lead to a permanent cure. By and by she consulted me again, and now the tumour was very much enlarged. The skin was ulcerated, and the ulcer was horribly

painful, so that her life was truly wretched. I said, 'I am afraid you will not get a permanent cure; but, suffering as you are, it is worth your while to have the breast removed, with a view to your being relieved from your present misery.' The breast was accordingly amputated. It was of a very large size, and there was a very broad wound, with a great deal of bleeding; but she recovered, and continued well upwards of three years. She had then some abdominal disease, and a tumour was felt in the belly, which I conclude was of the same character as the one in the breast. She fell a victim to this secondary disease, but I have the satisfaction of knowing that she was relieved of great suffering, and lived three years longer than she would have lived if the operation had not been performed.

I may mention other cases. A lady came to London, with a large tumour in one breast. There was a fungus protruding, and in the centre of the fungus there was an opening, through which a probe could be passed to the bottom of the tumour. There was also an enlarged gland in the axilla. Sir Astley Cooper saw the patient with me; and as she was suffering dreadfully from the ulcerated tumour, we agreed that she should have the breast removed, not expecting a permanent cure, but merely that she might obtain relief from her present distress. The operation was performed; the wound healed, and she had no return of disease in the breast; but a year afterwards her physician in the country wrote to me, saying that she had symptoms of some malignant disease going on in the chest. She died of effusion into the pleuræ. There was another lady with an ulcerated scirrhous tumour of the breast, which was so painful as to make her life miserable. I told her that I could not promise her a permanent cure; but as she was suffering so severely, she might as well have the tumour removed, nevertheless. She did so, and she lived in comfort for many months.

There may be, then, circumstances which justify you in performing the operation for the removal of a scirrhous tumour of the breast, not in the expectation of a permanent cure, but with

the view to afford the patient a respite and relief from present suffering. Of course you are here called upon to exercise no small degree of discrimination; and especially you should reject altogether those cases in which the skin is distinctly contaminated by the disease, whether it be that there are scirrhous tubercles in it, or that it be converted into the brawny structure which I have formerly described. In neither of these cases will the patient obtain even a respite by submitting to an operation.

There is still another circumstance to be taken into the account, when you are required to give an opinion as to the expediency or inexpediency of an operation. Is there any danger in the operation itself? It is commonly said, that this is not a dangerous operation; but I can appeal to the experience of all surgeons who have had much to do with it, whether it be always free from danger. I know that it is not. I have myself lost patients after the operation; and I have never known any one much employed in operative surgery who has not had the same misfortune. Here, I think that something depends upon the mode in which you perform the operation, and manage the patient, both before and afterwards; while a great deal depends upon circumstances not under your control. Especially, you should take care that there is as little hæmorrhage as possible at the time of the operation. Never believe those who, standing by at an operation, say, 'The patient has lost no more blood than will do him good.' Hæmorrhage, during any operation, is a great evil; and is one of the chief causes of failure. It is not that the patient dies directly of hæmorrhage, but that he may do so indirectly. It lays the foundation of erysipelas, and of venous inflammation, and other mischief, some time afterwards. Then take care not to keep the patient very low before the operation. What used to be termed preparing for an operation by low diet is always wrong. The patient need not to be stuffed and crammed with food before an operation, and she should have her bowels emptied; but as to repeated purging, and very low diet, that is not right, either before an operation or after it. An operation is a shock to the system,

making a great demand upon the vital powers; and if you take away whatever stimulus and food the patient is accustomed to, the constitution, probably, will not bear it. So far, I say, the success of the operation is, to a certain extent, under your control; but there are also unfavourable circumstances which you cannot influence. For instance, in a large fat woman, with an enormous breast, the operation is frightful. There is an immense wound, and there will probably be great hæmorrhage in spite of all your care. An old woman will not support the operation like a person less advanced in life. You are to look upon an operation, especially if there be a large incision, in an elderly person, as always attended with a certain degree of danger; and so it is when the patient is of a delicate and fragile constitution. For example, those women whom you meet with frequently in private practice, with an hysterical nervous system, a small pulse, and cold hands and feet, are always unfavourable subjects for operations, especially for those that are attended with even a moderate loss of blood. In such women as these you are to avoid an operation, if possible. But where the breast is small; where the patient is otherwise healthy, and not much advanced in life; and where you do not starve the patient, either before the operation or after it; and are also careful that there shall be as little loss of blood as possible—there the danger of the operation is comparatively trifling.

I have hitherto spoken of the operation for the removal of scirrhous tumours of the breast; but the breast is liable to other malignant diseases, and the observations which I have just made apply to these cases as well as to the others. I think, however, that where the malignant disease of the breast has the form of fungus hæmatodes, the chance of ultimate success is even less than where the disease has the form of scirrhus. Fungus hæmatodes is a worse form of malignant disease than scirrhus; and in most of the cases of it which I have seen in the breast, where the tumour has been removed by operation, the patient has died in a short time afterwards of disease of the lungs and effusion into

the pleuræ. But, after all, I believe that the disease is essentially the same, whether it assumes the form of scirrhus, or fungus hæmatodes, or pancreatic sarcoma. Whatever may be the names given to them by pathologists, you may be assured that malignant diseases are all nearly related to each other; and that the remarks which are applicable to one are very generally applicable to the rest.

As we have sufficient time before us, I shall take the opportunity of mentioning some cases in illustration of this last observation, which I think it is of importance in practice that you should not forget. There was a woman who had a scirrhous tumour of the breast; there was that brawny condition of the skin, which I have already described as indicating a very bad form of the disease. The whole of the skin had assumed the scirrhous structure, so that the tumour of the breast was scarcely to be distinguished under it. She had also some disease of the liver, and there was a discharge from the uterus. She died; and on examining the breast, there was found a well-marked scirrhous tumour in it; but in the liver there was a tumour, having equally well-marked characters of fungus hæmatodes or medullary disease; and in the uterus there was an excrescence of that kind which the late Dr. John Clarke described as the 'cauliflower excrescence;' and which he regarded as an incurable malignant disease of that organ. So that these three diseases, all malignant, and to which different names have been given by pathologists, were all associated in the same individual. You will see the appearances which they presented sufficiently well preserved in the preparations on the table.

On other occasions you will find malignant diseases, to which different names are given, occurring in succession.

When I was a young man, I went with Sir Everard Home, to assist him in a private operation in the case of a lady from the country, who had a tumour apparently in the abdominal muscles. Sir Everard removed the tumour; and when we came home, and examined it, we found that a portion of peritonæum adhered to it, and that it was of a distinct scirrhous structure. The wound

healed very well, and the patient went out of town. In the course of a little time, however, she returned to London, with another tumour formed in the cicatrix. She again put herself under Sir Everard Home. The tumour was larger than the one originally removed; but there seemed to be nothing else to be done, and he removed this also. It had no longer the characteristic structure of scirrhus; and I can only describe it by saying that it was like the fibrine of the blood, without the red colour; laminated; bearing some resemblance in its appearance to the buffy surface of a coagulum of blood drawn during inflammation, and very slightly organised. The wound healed; but by and by a third tumour formed in the cicatrix, and she again came to London. It seemed not worth while to remove the tumour a third time. It increased in size, and occupied a great part of the abdomen. She died; and it fell to my lot to examine the body. The morbid growth was entirely different in appearance from either of those that had been removed. It was a regular brain-like or medullary mass; in fact, fungus hæmatodes.

There is a circumstance which I ought to have mentioned in an earlier part of the lecture, and which should always be taken into account whenever you are in doubt as to the expediency of the operation. It is very true that a scirrhous tumour of the breast will generally terminate the patient's life, if left to itself, in three or four years; nevertheless, it often lasts much longer. I remember a lady of fashion, who had a scirrhous disease of the breast; who lived in the world, and nobody knew anything about it, for several years—I believe ten or fifteen. I remember another lady who had a scirrhous tumour of the breast twenty-five years; and she died at last, not from the disease of the breast, but from effusion into the cavity of the chest. If you are doubting about the expediency of an operation, and the disease be in an indolent state, the recollection of such cases as these, where the patient has lived with a scirrhous tumour of the breast unaltered for many

years, should be sufficient to incline you to reject it. The chance of a patient living long with such a disease is not such as should induce you to throw away the chance of an operation, where it is likely to be attended with advantage, but is sufficient to make you decline the having recourse to it, where other circumstances would lead you to doubt its propriety.

ON CORNS AND BUNIONS.

It cannot be doubted that the physical condition of man is on the whole much improved by civilisation. The increased length of human life sufficiently proves the fact. But it is not all gain; and the usages of society are productive of some evil, combined with much good. The evil affects the weaker more than it does the stronger sex. Young ladies, living much in heated rooms, taking little exercise in the fresh air, over-educated as to the acquirement of accomplishments, and using their muscles too little, lose the beautiful figure with which they are endowed by nature, and become affected with the various kinds of curvature of the spine, and weakness and distortion of the ankles. The same mode of life renders them liable to the innumerable varieties of hysterical disease, which in so many instances destroy the comfort, and I may say the dignity, of existence, enervating both the body and the mind, and making their condition altogether much less desirable than that of the poor peasant girl.

There is another order of diseases which we meet with more frequently among females of what are called the better classes than among other persons; namely, corns and bunions; and it is to this last humble, but not unimportant, subject, that I propose to call your attention in the present lecture.

A corn is in the first instance a thickening of the cuticle. Whenever the cutis is habitually subjected to the influence of pressure, it secretes a thick and horny cuticle. We find examples of this in the hands of many mechanics, and in the soles of the feet in those who walk much. But every thickening of the cuticle

is not a corn, and this name is applicable only to those cases in which the cuticle is thickened over a projecting portion of bone, on which the pressure is, as it were concentrated. Corns may occur in any part of the body in which this combination of circumstances exists; but, for obvious reasons, they are met with in the feet much more commonly than anywhere else.

If shoes were constructed of the shape of the human foot, neither too large nor too small, and making an equal pressure everywhere, corns and bunions of the feet would never exist. But, unfortunately, shoes are seldom made after this fashion, and in ladies' shoes especially there are generally two signal defects: first, the extremity of the shoe is much too narrow for that part of the foot (namely, the toes) which it is to contain; and, secondly, for the purpose of displaying as much of the foot as possible, the whole of the tarsus and metatarsus is left uncovered, and the pressure of the shoe in front is thrown entirely upon the toes. The toes are thus first squeezed against each other, and then pushed out of their natural position; and all the projecting points, chiefly where the joints are situated, are pinched and tormented either by the neighbouring toes, or by the leather of the shoe, and thus it is that corns of the feet are generated.

In order that you should understand the precise situations in which corns are most likely to take place, you must consider more particularly the effects which the pressure of the shoe produces on the toes. The little toe is pushed from its parallel position, so that it is in fact underneath the fourth or adjoining toe, and corns

being drawn tight over the upper surface of the second or displaced toe, corns are produced over one or more of its articulations.

At other times one of the toes (and in this case also it is generally the second toe) is displaced in another way. The extremity of it is pushed downwards, so that it lies beneath the extremities of the two adjoining toes, which come in contact over it. But this change cannot take place while the three phalanges of the displaced toe remain in a line with each other. The first and second phalanx make an angle, projecting upwards. The second joint of the toe becomes prominent above, and a corn is formed over it. If the shoe, instead of being too narrow, be too short for the foot which it contains, the last phalanges of all the smaller toes are kept constantly in a half-bent state, and a row of corns is generated, one being situated on the upper part of the last joint of each of these toes. I have endeavoured to enumerate what may be regarded as the most ordinary localities of corns; but of course they may be produced anywhere else, according to the shape of the shoe, the mode of walking, and other circumstances.

I have said that a corn is, in the first instance, a thickening of the cuticle secreted by the cutis, when it is kept in a state of constant irritation by the operation of external pressure squeezing it against a prominent surface of a bone. But a complete corn is more than this. A bursa, or bag of synovial membrane, similar to those bursæ which are of original formation, but of a very small size, is formed between the thickened cuticle and the cutis; and it is this combination of thickened cuticle with a subjacent bursa, which constitutes a perfect corn. This is a fact which you may easily verify for yourselves, as the opportunities of dissecting corns are abundant in the dead house of the hospital.

The thickened cuticle of those corns, which are situated externally, becomes dry, and hard, and horny; while that of the corns which are situated between the toes remains soft, and to a certain degree moist, and this gives rise to the distinction between hard and soft corns. I shall speak to you of hard corns first; of soft corns afterwards

A hard corn, when it begins to be formed, is productive of no other inconvenience than of a slight degree of pain and tenderness after much exercise. The pain and tenderness increase, so that the patient in the evening is glad to take off his leathern shoe and put on a woollen slipper. Then the whole foot, after exercise, is hot and uneasy. These symptoms subside with rest, and the absence of pressure, during the night, but return with the wearing of the shoe and exercise during the day. By and by the bursa under the horny cuticle becomes inflamed, and distended with fluid, and the pain is much aggravated. But the sufferings are greatest in those cases in which the bursa suppurates. An abscess forms in parts which are incapable of distension, and you know how much mischief even a very small collection of pus, under such circumstances, may occasion. I was sent for to an old gentleman who was suffering excruciating pain in the whole foot, which was red and much swollen, the swelling extending up the leg considerably above the ankle. In one toe, and in the neighbouring part of the foot, the tenderness and other marks of inflammation were greatest, and here I discovered an old neglected corn. He could scarcely bear the corn to be touched; however, I carefully removed the hard cuticle with a scalpel, and made an opening into the bursa under it. Not more than a drop of matter escaped, but this was sufficient to give immediate relief. On the following day he was well. I was desired to see another patient, a young lady, under the same circumstances, except that the symptoms were more severe. The inflammation involved nearly the whole leg, and there was a frequent pulse, and much general excitement. I removed the thickened cuticle of a corn on one of the toes, and allowed a very small quantity of pus to escape which was collected beneath it. This gave immediate relief, and on the following day she was all but well. Several similar cases have fallen under my observation.

I have already mentioned that the most common seat of a soft corn is in the angle between the little toe and the fourth toe, over the head of the metatarsal bone which supports the latter.

Occasionally, however, a soft corn occurs elsewhere—as, for example, on the inside of the little toe, opposite to the last joint of the fourth toe. Such corns are even more painful than hard corns, except when suppuration takes place in the bursa, and then the suffering is less in proportion, as the thickened cuticle of a soft corn admits of distension more easily than that of a hard corn.

Under ordinary circumstances, it is easy to give temporary relief to a patient who suffers inconvenience from a hard corn. The thickened cuticle should be removed, so as to lessen the pressure on the parts below; and this may be accomplished in various ways. 1st. If the corn be of long standing, and a piece of linen or thin leather spread with some mild plaster (diachylon for example) be applied, and worn over it, it will sometimes exfoliate or separate without further trouble. 2nd. The corn may be rubbed with the nitrate of silver, or (which is indeed preferable) the concentrated nitric acid may be applied by means of a probe armed with lint. The texture of the cuticle being thus destroyed, exfoliation will take place, so that in the course of a few days the corn may be readily peeled off. 3rd. The corn may be reduced in thickness by scraping its surface with a very fine steel or fish-skin rasp. And 4th. The corn may be removed by means of a fine cutting instrument. This last is the shortest and simplest method; and the patient may keep himself in a state of comfort by procuring the assistance of a dexterous chiropodist at stated periods, who will perform this operation for him better than he can perform it for himself.

With a view to a permanent cure, however, it is necessary to have recourse to other methods of treatment. In some way or other all undue pressure must be removed from the part on which the corn is situated. 1st. The shoe must be made as nearly as possible to the shape of the foot, and it must cover the metatarsus and a portion of the tarsus, so that the whole pressure may not be thrown on the toes; or a boot made to be laced or buttoned may be worn instead of a shoe. In some cases it is advisable that the shoe or boot should be made, not of ordinary leather, but of

very soft and flexible buck-skin, or of cloth. A material for shoes and boots is sold under the grandiloquent name of pannus corium, which answers the purpose intended in these cases very well. It is really a kind of cloth, but it has the appearance of leather, and is very soft and pliable. 2nd. If any of the toes are displaced in any of the ways which I have before described, we must endeavour to restore them to their natural position. In young persons this may be generally accomplished. A contrivance made use of by the bandage-makers is very useful on these occasions. It consists of a thin plate of metal covered with thin leather, or a piece of strong leather, fitted to the lower surface of the foot—not to the whole of the surface, but extending from the extremities of the toes nearly to the tarsus. Slits are formed in this plate of metal or leather, and tapes are passed through these slits, forming loops above, by means of which the toes are bound down and retained in their proper places. In many cases the same object may be attained by simpler means. A long strip of linen, spread with adhesive plaster, about two thirds of an inch in breadth, may be passed over the toes which are too much elevated, and under the others, the extremities of the plaster being made to cross over the metatarsus. If this be neatly applied, it will keep the toes parallel to, and on the same level with, each other. Whichever of these methods is adopted, it is necessary that it should be persevered in for a very considerable time. In older persons, in whom the toes have been long displaced, they have sometimes become so adapted to their unnatural position, that it is almost needless to attempt to alter it. Under such circumstances we are sometimes, in hospital practice, compelled to amputate one of the toes, in order that the patient may not be dissabled from earning his livelihood; and the same thing may be occasionally required in private practice. A young lady suffered from displacement and distortion of the second toe, such as I have already described. The extremity of it lay under the extremities of the two adjoining toes; the second and third phalanges were nearly ankylosed at a right angle to each other, and a corn was formed over the second joint, where it made

a considerable projection above. She applied to me to amputate this offending toe. I answered, 'that I would do no such thing; that I might do it for a labouring person, but that I would not do it for her, as she had not to earn her bread by her bodily labour.' She replied, 'You seem to treat the matter very lightly, but this toe makes my life miserable; I can take no exercise, I am unfitted to enter into society, and I have tried all other methods of relief without success.' On inquiry I was satisfied that she in no degree exaggerated her sufferings, and I therefore complied with her wishes, and amputated the toe at the first joint.

A very simple, but scientific, method of relieving and sometimes even of curing corns, is practised by the chiropodists. A piece of buck-skin leather, spread with adhesive plaster, is applied to the toe where the corn is situated, there being a hole in the leather corresponding to the corn. Thus the pressure of the shoe is taken off the corn, and thrown on the surrounding parts. If this be kept constantly applied, and proper shoes be worn at the same time, the corn will gradually disappear. A better material than the buck-skin for this purpose, however, is the amadou spread with soap-plaster, which I have recommended on some other occasions. By laying one piece of the amadou over another, it may be obtained of any thickness.

In some cases a hard corn is formed on the lower surface of the foot, over the head of one of the metatarsal bones. A corn in this situation is especially troublesome, rendering the patient absolutely lame. Some such method as that which I have just described is applicable to this case also, or an opening larger than the corn itself may be made in the upper sole of the shoe, so as to take all pressure from the corn. But here it is necessary that a thin piece of calico spread with adhesive plaster should be applied to that part of the foot in which the corn is situated. Without this contrivance, the flesh of the foot, when the patient walks, bulges or projects into the hole of the leather, and the patient's condition is rendered worse rather than better. The calico with adhesive plaster prevents this inconvenience, at the

same time that it does not interfere with the intended purpose of taking the pressure off the corn and throwing it on the surrounding parts.

When an abscess is formed in the bursa under a hard corn, the treatment to be employed is very simple, although the relief which it affords is immediate and great. You are to pare off the hard and horny cuticle, and open into the bursa, so as to allow the small quantity of pus which it contains (perhaps no more than a single drop) to escape. Thus, not only are the present symptoms relieved, but the corn is effectually destroyed, both the thickened cuticle and the bursa under it; and it is very easy, by means of the expedients which I have just recommended, to prevent it from being regenerated.

The treatment of soft corns is to be conducted on the same principle as that of hard ones, some modification of the treatment, however, being required, on account of their peculiar texture and situation. The thickened cuticle may be removed by the application of the strong acetic acid, or strong nitric acid, applied so as to penetrate into its substance, but not to the parts beneath. The effect of this is to destroy the texture of the corn. It becomes dry and shrivelled. In the course of a few days it begins to exfoliate, and may then be readily peeled off. If an abscess forms in the bursa of a soft corn, it should be treated in the same manner as that in the bursa of a hard one.

In some cases, even though there be no abscess underneath, a soft corn becomes exquisitely sensitive, so that the patient cannot bear it to be touched; and he is made as lame as if he suffered from the gout or any other painful malady. Such a case fell lately under my observation, which I mention, not because it was peculiar, but because the sufferings of the patient were unusually severe. There was a broad soft corn on the side of one toe, where it came in contact with the side of the adjoining toe, and not in the angle between them. The patient could scarcely walk, even with a loose slipper, and the corn itself was so exquisitely sensitive, that the slightest touch could not be borne. This state of things

had existed for many weeks, the corn itself being of a much earlier date. I applied the strong nitric acid until I had reason to believe that it must have penetrated through the thickened cuticle. An increase of pain followed the application, and continued for some hours. On the following day there was a manifest improvement. I was now enabled, without any difficulty, to remove the corn with a fine scalpel. The recovery of the patient was immediate and complete; so that, having been previously quite lame, he was enabled, in less than twenty hours, to walk as well as ever.

The first thing to be done for the permanent cure of a soft corn is, that the patient should be provided with a shoe of a proper shape, and that the toes which are in any way displaced should be brought back into their proper position. Now I have already observed that the most common situation of a soft corn is between the fourth toe and the little toe, over the head of the fourth metatarsal bone, and that in this case the little toe, towards its extremity, is always pushed more or less underneath the second phalanx of its neighbour. You will sometimes succeed in bringing the little toe to its proper place by means of a strip of adhesive plaster, applied round it in the manner of a loop, and then encircling the foot.

In other cases you will find the following method more convenient than that which I have just described:—A piece of *very thick* buck-skin leather, spread with adhesive plaster, is to be applied on the inside of the little toe, so as to occupy the whole of the inner surface, from the apex to the second joint. The leather should be cut so as to be thin at its margin; and it should be sufficiently broad to admit of being doubled over a good part of the upper and under surface of the toe, as well as its extremity. This contrivance will keep the little toe at some distance from the next toe, and prevent it from sliding again under it. If both of these expedients fail, the patient must be content to wear for a time the metallic or leathern plate, with loops of tape for inclosing the toes, which I have already described.

The bunion, which is frequently formed on the inside of the ball (as it is called) of the great toe, differs in some respects from the disease of which I have hitherto spoken.

The great toe ought to be in a line with the metatarsal bone, by which it is supported. But a shoe which is too narrow at its extremity causes it to incline towards the outside, displacing, in a greater or less degree, the toe next to it, as I have explained already. In some cases, the effect of pressure on the great toe is actually to alter the position of the joint between it and the metatarsal bone; a portion of the articulating surface on the extremity of the latter being absorbed, and a new articulating surface being made to supply its place more externally than the old one. The existence of these changes I have ascertained by dissection. Now, the consequence of all this is, that the head of the metatarsal bone makes an unnatural prominence, and is more acted on by the pressure of the shoe than it would be otherwise. The cuticle becomes thickened, not at one particular point, but over a considerable surface; and underneath the skin a large and very distinct bursa is generated between it and the bone. The difference between what I have now described and a common corn may reasonably be attributed to the large size of the head of the first metatarsal bone, and to the consequent diffusion of the pressure over a broad surface.

When a bunion is once formed, the bursa belonging to it is liable to become inflamed after any unusual degree of exercise, or on it being subjected to the pressure of a more than commonly tight shoe. Serum is then effused into the cavity of the bursa; the swelling is much increased, and it becomes, at the same time, exquisitely painful and tender. If the patient remains at rest, the inflammation subsides, the serum effused into the bursa becomes absorbed, and the additional swelling disappears without any further ill consequences. If, however, he continues to walk about, wearing, at the same time, a tight shoe, the inflammation proceeds further; suppuration takes place, and an abscess is formed. Such an abscess is slow in reaching the surface; the patient generally suffers severely before it bursts externally; and

when it has burst, as the synovial membrane of the bursa granulates with difficulty, the healing of the abscess is very tedious, the parts remaining all the time in a very irritable and painful state.

For the relief of this bunion, when it is free from inflammation, or inflamed only in a slight degree, the following plan of treatment should be adopted. The patient should be provided with a shoe of sufficient dimensions, of a proper shape, and made of cloth, or a soft and pliant leather. A compress should be then prepared of two or three or more pieces of amadou spread with soap-plaster, large enough to cover the bunion and a good portion of the foot in the neighbourhood. This should be cut somewhat into the figure of a horse-shoe; and it should be then applied so that the bunion may be in the empty space, and relieved from the pressure of the shoe, which is thus thrown on the surrounding surface. The advantage of the horse-shoe-like opening over a more circular opening is, that the soft parts do not bulge into the former as they do into the latter. If however the bursa be much inflamed, the patient should be confined to the couch, without a shoe. Leeches may be applied in the neighbourhood, and the parts may be fomented with hot water. If an abscess be formed it should be freely opened with a lancet. For some time after the opening of the abscess no other treatment is required than the application of a poultice. This may be changed afterwards for soap-cerate, or zinc ointment, or other mild dressing. Perhaps the abscess may now gradually heal, and no other treatment may be required; or it may be necessary to destroy the secreting surface of the bursa, by means of some kind of caustic. The concentrated nitric acid answers the purpose well. The sharp end of a probe armed with lint may be dipped in the acid and applied for a few seconds to the inner surface of the bursa. A thin slough will, of course, be formed; on the separation of which the bursa will probably granulate, contract, and heal; otherwise the application of the caustic must be repeated.

After what I have said it is needless for me to offer any further

observations as to the means which may be adopted with a view to prevent the bunion from being regenerated.

A case came lately under my observation, in which what appeared like a bunion on the inside of the ball of the great toe contained an albuminous substance, of the consistence of the vitreous humour of the eye, similar to what is met with in the ganglions which we meet with in the neighbourhood of the wrist, and in some other situations. Whether this was an ordinary bunion, in which the vessels of the bursa assumed the action of secreting this particular substance, or whether it was really a common ganglion, I was unable to determine. The treatment which I adopted was that of opening the cyst freely, and applying the concentrated nitric acid to the inner surface. It was necessary to proceed with great caution, lest I should injure the joint or bone beneath, and therefore several very light applications were required. My object was to destroy the secreting surface, and obtain a granulating surface in its place; and when I last saw the patient, previously to her returning into the country, I had reason to believe that I had succeeded; but I have not heard of her since.

A tumour is occasionally formed on the instep, which, although neither a corn nor a bunion, bears a near relation to them. It is met with in young men who wear tight boots, and the usual situation of it is near the articulation between the internal cuneiform bone and the metatarsal bone of the great toe. The tumour is under the skin, hard and immovable, so that it seems to a superficial observer to be an enlargement of the bone itself. The skin over it is in a natural state except in cases of long standing, in which the cuticle becomes somewhat thickened. I have had no opportunity of dissecting the parts affected with this disease, and am uncertain as to the exact texture in which the deposit takes place.

A tumour of this kind is productive of as much inconvenience to the patient as a corn, and requires the same treatment. He should for a time leave off boots altogether; or, if he cannot well

do this, the boot-maker should be directed to procure a last with a projection in that part of it which corresponds to the situation of the tumour, so that the boot may not make any pressure on it. A piece of thick buck-skin leather spread with adhesive plaster, or a compress made of amadou, such as I have already described, and cut into the shape of a horse-shoe, will also give immediate relief, and ultimately produce a cure. But the cure of course will not be permanent if he continues to wear tight boots afterwards.

I have several times seen a tumour, similar to that which I have just described, in school-boys, situated on the fore-part of the head of the tibia, at the insertion of the tendon of the extensor muscles; apparently the result of kneeling or clambering on the knees. Although of no real importance, it is often a subject of great anxiety to parents. A tumour of the same kind is also occasionally met with near the inner condyle of the femur, in those who ride much on horseback. In either case the avoiding pressure is sufficient to relieve the patient of whatever inconvenience the disease produces.

ON THE ADMINISTRATION OF MERCURY IN CASES OF SYPHILIS.

THE subject of the present lecture is one of considerable interest —the administration of mercury in cases of syphilis. My object is not to enter into details, but to offer some general observations, which at this time, when there is much difference of opinion respecting the use of mercury, and much random practice in its exhibition, may, I trust, be of some service to you when you first enter on the practice of your profession.

Mercury was employed for the cure of syphilis very soon after the disease was first recognised in Europe—I believe within three or four years after the siege of Naples, where it was formerly supposed that it first broke out; and from that time to this, through good report and through evil report, in spite of the too strong prejudices of some in its favour, and of others against it, it has maintained its general reputation in the profession. However, at different periods, other remedies have been proposed as substitutes for it. Sir William Fordyce wrote a pamphlet to show that syphilis might be cured by sarsaparilla. Mr. Grant, an army surgeon, alleged that it might be cured by opium. Some one asserted that ammonia would produce the same effect; and others have advocated the exhibition of nitric or nitro-muriatic acid. Guaiacum, hemlock, muriate of barytes, and other remedies which it is needless to enumerate, have had their respective advocates. In Spain, Portugal, the West Indies, the Islands of the Pacific Ocean, and other hot climates, it has been stated, on what seems to be good authority, that persons recover from the venereal disease who never take a particle of mercury. Notwithstanding

what I have just stated, in the beginning of this century there was a prevailing notion that mercury not only was a specific for syphilis, but that the disease could never be cured without it. Mr. Abernethy, in his work on what he calls pseudo-syphilis, lays it down as a rule that syphilis is uniformly progressive if mercury be not administered; and accordingly, if a case came before him in which the symptoms yielded to other treatment, he pronounced that the disease was not syphilis. It is true that he gave no reason for this extraordinary assumption; it was a complete petitio principii; and this illogical conclusion has much diminished the value of this part of his works. Not long after this opinion was published by this distinguished pathologist (an opinion which, as I have already observed, was generally adopted by the profession), a friend of mine, the late Mr. Rose, who was afterwards surgeon to this hospital, instituted a series of experiments on the subject. He had ample opportunities for conducting them, as he was surgeon to one of the regiments of the Guards. Soldiers in this metropolis cohabiting with the lower order of prostitutes are, as you may suppose, very liable to become affected with syphilis. For a year or two he treated every soldier labouring under the disease that came into the regimental hospital without mercury. I had frequent opportunities of seeing these cases, and from time to time I watched their progress with him. Every sore upon the organs of generation got well under his management. Many of them, probably, were not venereal, but of course many of them were. Not only did the sores heal, but the consequent hardness of the cicatrix disappeared. Some of the secondary symptoms were slight, and others were severe; in fact exhibiting nearly the usual character; but they were removed without the use of mercury. Mercury was had recourse to in only two or three cases, and there it was rendered necessary to save the eye, in consequence of inflammation of the iris supervening. From these facts Mr. Rose came to a conclusion, which these cases certainly seemed to justify, namely, that syphilis was curable without the use of mercury. Other army surgeons repeated these experiments with the same

results; and I believe that the disease is even now treated in the army to a great extent on the same system.

These observations led a certain part of our profession to a view of the subject entirely different from that which had been entertained previously. They not only alleged that mercury was unnecessary for the cure of syphilis, but that it did a great deal of harm, and that the introduction of it into the system was actually worse than the disease which it was intended to cure.

With respect to the recovery from syphilis without the aid of mercury, I may observe, that it appears to me that you cannot properly apply a rule, drawn from the observation of what happens in soldiers, to society in general. In all cases the effects of a disease depend very much on the kind of constitution that is attacked. Students coming from the country are often astonished by the difference in recovery from compound fractures in a London Hospital, and where they have seen them occur in a purer air, and in another order of persons. In London, the cholera destroyed 300 out of 18,000 inhabitants; in Sunderland it carried off a very large proportion (I forget exactly what) of the population; as it did in Paris also. In London, its destructive influence was felt, not among the affluent classes, but among those who were ill-fed, ill-clothed, and breathing a poisonous atmosphere. So I apprehend it to be with syphilis. Soldiers are persons of strong constitution, and in good health, otherwise they would not be received into the army. They are not much advanced in life; they are taken into a regimental hospital, are kept under the constant eye of the surgeon, and are dieted exactly as he pleases. The general health is attended to in every respect; they are not allowed to be exposed to the influence of atmospheric changes; and, in short, from their constitution, and from the situation in which they are placed, it may well be supposed that they have a power of throwing off morbid poisons not enjoyed by the great majority of other persons. Experience fully confirms these observations. In this hospital I have tried to treat syphilitic patients

without mercury with very little success indeed; and I venture to say, that in private practice the attempt to adopt this plan, as a general rule, will always be a failure. Sir William Whimper, who was formerly surgeon-major of the Coldstream Guards, and who saw a great deal of syphilitic practice, told me that he could manage the cases of private soldiers in this way, but not those of the officers. Mr. Rose at first was led to believe that he might adopt the method of treatment which he had followed in the army in private practice also; but he soon found that here it was unsuccessful, and at last he gave mercury like other persons. In cases where he did not administer it, he found that he was continually becoming involved in difficulties.

With regard to the other notion, that mercury often tends to aggravate the disease instead of curing it, I know that its injudicious use will often produce that effect; but, from the experience which I have had in these matters, I am satisfied that it is not so with its wise and judicious administration. It has been said that diseases of the bones do not occur where mercury is not employed; and, indeed, I believe that in patients in whom mercury has been injudiciously used, disease of the bones is more frequently met with than it was in Mr. Rose's military patients, in whom mercury was not had recourse to. I know, also, that when mercury is given for other diseases—for example, for an hepatic affection, or for diseased testicle—it will sometimes be productive of nodes afterwards. Nevertheless, I have no doubt that syphilis will give rise to disease of the bones, even where no mercury has been administered. A gentleman had a sore which no one doubted to be venereal. He took no mercury, and it healed. I forget the exact symptoms which followed, but when I saw him in consultation with Mr. Rose, a couple of years afterwards, he had extensive disease of the bones of the nose, and the disease was still going on, in spite of various remedies which he had used. Still he had taken no mercury. We agreed that the best thing to be done was to put him under the mercurial influence. He was to have taken lodgings in London, for the purpose of going through a course of

mercurial inunction; but in the meantime he had a fit of epilepsy, and this was succeeded by a second and a third fit. He became maniacal, and died. I do not know that his body was examined after death, but neither Mr. Rose nor myself doubted that the disease had extended up the ethmoid cells, affected the cribriform lamella of the ethmoid bone, and ultimately the brain and its membranes. I may mention another case which also had been treated by Mr. Rose without mercury. A venereal sore healed with some simple treatment, but a few months afterwards the patient was seized with pain in the limbs, which was considered to be neuralgic. By and by there were nodes on the shin and elbow. He had never had any disease before this chancre, and we could not but suppose that the poison had entered into the system, and that, without giving rise to the first order of secondary symptoms, it had gone on at once to the second order, and affected the bones. The conclusion of the case was, that the patient got entirely well under the use of sarsaparilla.

Experience proves to me, and I am sure that it will prove to you also, that we have hitherto found no remedy having the same power of extinguishing the venereal poison as mercury. But then it must be judiciously administered at the time, and in such cases only as are proper for it; and without all this care it may do great harm. In this there is nothing at all remarkable, for (with the exception, perhaps, of sarsaparilla), I do not know any medicine capable of doing great good, that may not, under certain circumstances, operate as a poison. I saw a gentleman very nearly killed by an over-dose of quinine; others have died in consequence of the imprudent exhibition of the iodide of potassium; and others have been killed by arsenic. A remedy that is strong enough to do good is almost invariably strong enough to do harm, if it be not used properly.

You are not, then, to suppose that you are to administer mercury as a matter of course in all cases of syphilis; but the general rule is, that it should be given; and it being so, I shall endeavour to point out briefly, not the cases in which you may

exhibit it, but those in which you should either not give it at all, or give it with especial caution.

There are persons of a certain delicate constitution, having what is called a scrofulous diathesis, disposed to phthisis, and other diseases of the same class, and here you should not administer mercury until you are quite sure that it is wanted. Nevertheless, I believe that scrofulous persons, who really have syphilis, are best treated by mercury. If mercury be to them an evil, syphilis is a still greater evil. Scrofulous diseases are more especially developed after the system has been affected by a morbid poison. Those who are disposed to phthisis will have tubercles in the lungs after scarlatina, measles, and small-pox, and it is just the same after being affected with syphilis. Enlargement of the glands of the neck often takes place where the system is disturbed by the syphilitic poison; and this shows you what may be expected as to other organs. When in these cases it is absolutely essential to exhibit mercury, it must be done with great caution. The remedy must be given in moderate doses, and the patient must be carefully watched all the time that he is using it.

Those who appear to be in strong vigorous health are not always good subjects for mercury. There are many persons of this description who, in consequence of drinking a large quantity of wine and of other irregular habits, are in a state of constitution that is very unfavourable to its exhibition. It is true that the poison of syphilis in such persons often produces frightful and intractable symptoms. But, nevertheless, it is best to defer the use of mercury until the constitution has been improved, for if you administer it sooner, you have to contend with the ill-effects both of the mercury and of the disease. If you cause the patient for some time to lead a more regular life, and by these and other means improve his general health, you may then resort to mercury with advantage, and probably cure the disease.

There are some individuals in whom, for reasons which we cannot assign, mercury always operates as a poison, and you cannot tell who these individuals are until you have made the trial.

This is in itself a sufficient reason why you should carefully watch every patient in whose case you administer mercury, especially if he has not taken it before.

In the case of primary sores, where there is a great deal of inflammation in the neighbourhood, it is scarcely ever right to employ mercury in the first instance, for the probability is that it will cause the inflammation to terminate in sloughing.

The inflammation in such cases must be combated by bleeding, purging, and other means, and it is better to patch up the sore as well as you can, and let the disease go on, until it has produced secondary symptoms, rather than to exhibit mercury under the circumstances just mentioned.

In cases of phagedenic and sloughing chancre, where its condition depends on a bad state of the patient's constitution, it is always wrong to give mercury at first, for it will aggravate the disease and make it spread more rapidly. But there are cases in which the phagedena depends on the intense action of the venereal poison; and here, as I shall explain presently, mercury may be given.

In cases of secondary symptoms, you will occasionally find that mercury, instead of acting upon and curing them, will have an opposite effect, aggravating the symptoms; so that the more mercury you give the worse they become. This, as I have already explained, may depend on the patient's previous habits of life; or it may be the result of some peculiarity of constitution, original or acquired, or of the mercury having been administered in an injudicious manner. Under these circumstances you must, for the present at least, suspend the use of the remedy. The patient may appear to get well when first he leaves it off, yet he will probably subsequently require it again. To illustrate this last observation I may mention the following case. A lad was brought into this hospital with a sore throat and what appeared to be a syphilitic eruption in different parts of the body in a state of painful ulceration. He was emaciated, and altogether very ill. I found that he had been taking mercury under a private practitioner, in large

quantities, for not less than five months. His gums had been, and still were, exceedingly sore, and it appeared that in proportion to the quantity of mercury taken, so had the symptoms become more urgent. I directed him to leave off the mercury, and I gave him sarsaparilla. In a short time the eruption disappeared, and he was discharged as cured. After the lapse of a few months he came to the hospital again, with a sore throat and a return of the eruptions, having taken no mercury in the interval. I gave him sarsaparilla a second time, and he got well, but the eruption did not disappear so rapidly as in the first instance. I still thought it imprudent to have recourse to mercury. After he had been away three or four months more, he came to us a third time with a recurrence of his old symptoms. I again resorted to sarsaparilla, and the eruptions yielded, but more slowly than on the previous occasions. Towards the conclusion of the time that he was in the hospital iritis supervened, for which I gave him the bichloride of mercury for a short time until the iritis had subsided. Some two or three months afterwards the disease again broke out with nearly the same symptoms as before. Now he went into the Lock Hospital, under the care of the late Mr. Blair. This was fourteen months after he first came to St. George's, and he had taken no mercury, except for the iritis, during the whole of that time. Mr. Blair now, very properly, put him under a course of mercurial inunction, and I believe that he was permanently cured. If I had done this when he first came under my care he would probably have died. I might mention other cases illustrative of the same point if it were worth while to do so.

I have said that, in the great majority of cases, mercury is the best remedy which you can employ for the cure of syphilis; provided always, that it be judiciously and properly administered. There are different ways of exhibiting mercury. It may be given internally; it may be applied externally, in the form of ointment, or by the method of fumigation. The mercurial preparations that are given internally are various; blue pill, the hydrargyrum cum

cretâ, calomel and opium, Plummer's pill, iodide of mercury, bichloride of mercury, and some others.

You will find it very convenient to give mercury internally, in the shape of pills, when you wish to affect the system rapidly, as, for example, in a case of iritis. A patient labouring under iritis is in danger of becoming blind; you must place him under the influence of mercury as soon as possible; and this is better accomplished by giving calomel and opium than in any other way. In slighter cases of syphilis the disease may be cured very well by mercury exhibited internally. There are some patients so circumstanced that they cannot take it in any other manner; because they are living with their families, and for other reasons; and altogether, there are a great many instances in which it is either convenient or necessary to exhibit mercury internally. But if you ask me which is the best way of using mercury where the symptoms of syphilis are not of the very mildest character, I must say that that by inunction is infinitely to be preferred. Mercurial inunction is dirty, laborious, and troublesome, and it makes the matter public to the family in which the patient lives; for one or other of these reasons it will generally be unpleasant to him. But it has these advantages: it is much less liable to gripe or purge; it cures the disease a great deal better, and does not damage the constitution half so much, as mercury taken by the mouth; nay, I will go so far as to say, that, except in the slighter forms of the disease, you really cannot depend upon any other kind of mercurial treatment for the production of a cure. You may patch up the disease by giving the remedy internally, but it will return over and over again, and then you may cure it at last by a course of mercurial ointment properly rubbed in. I say properly rubbed in, for much depends on this. The patient, if not well instructed, will perhaps continue the friction for a few minutes; but it ought to be continued before a fire at first for at least half an hour, and very frequently for three quarters of an hour. After some time the ointment will be absorbed more readily, and it may then be rubbed in for a shorter period. Where the symptoms are not of

a mild character the patient should, if possible, be confined to the house, except perhaps for an hour or two in a fine day. The going out into the fresh air (as Mr. Pearson observed long ago) will counteract the influence of mercury. You never can be responsible for thoroughly eradicating the disease where the patient is at all exposed to cold or wet, nor where he does not lead a most regular and careful life in all respects.

In all cases of syphilis in which you employ mercury, remember that you have two objects in view: the first, to cure the present symptoms; the second, to prevent a return of the disease. It seems to me that a great number of practitioners at the present day regard only the first object, and lose sight of the second. I have frequently seen a person who has taken mercury for a chancre, which has, perhaps, healed in a fortnight, and then has left it off, although a very hard cicatrix has been left. Under such circumstances, in nineteen cases out of twenty, there will be secondary symptoms. If mercury be taken for the primary symptoms, the patient should never leave it off till the hard cicatrix has disappeared; nor, indeed, for some time afterwards; and so, where it is given for secondary symptoms, it should be continued for a considerable time after they have disappeared. A man has an eruption of the body; it fades away, under the use of mercury, in the course of a month; but the remedy must be used as a prophylactic for another month. If a patient be confined to his house, or only allowed to go out a little in a fine day; if he be made properly to rub in the ointment, and the course be carefully watched and continued for some time after the symptoms have subsided, you will, I am satisfied, in the great majority of cases, make a real and permanent cure of the disease. I suspect that this is not the way in which it is administered by the majority of practitioners at the present time, but it was so administered formerly. You must not suppose that we have advanced alike in all departments of surgery; indeed I am sure that in some things we have gone back, and I believe this to be one of them. I am much mistaken if the mercurial treatment of syphilis, as employed

the necessary friction; and the cuticle being thin the mercury easily enters the system. This causes neither griping nor purging; in a child it does not even in general cause soreness of the gums; but it cures the disease. Very few of those children ultimately recover in whom the mercury has been given internally; but I have not seen a single case in which this other method of treatment has failed.

Mercurial inunction may be employed in certain cases in which mercury taken internally would absolutely do the greatest harm. For example; a gentleman had a phagedenic sore upon the penis. It could not be said that he was in ill-health before, and therefore there was reason to believe that the disease was spreading merely from the intensity of the venereal poison. He took calomel and opium; the gums became tender; but the sore became worse than before, spreading more rapidly, until the greater part of the glans was destroyed. The ulceration showed no disposition to stop; resisting all modes of treatment; until, at last, he was put on a course of mercurial inunction. Then the progress of the ulceration was at once arrested, and the sore healed as fast as possible. I have seen several cases of the same kind.

I have already mentioned another mode of administering mercury, namely, by fumigation. It may be applied, locally, to the part affected; or, generally, to the whole person. In the latter case the patient is placed in an apparatus like that used for sulphureous fumigation; but, instead of sulphur, the black oxide of mercury is thrown upon the hot iron. If you wish the system to be speedily affected, you may direct the patient to hold his head in the inside of the bath for two or three minutes, and inspire the mercurial vapour. I have used this with success in several cases where it was my object at once to affect the system; but I have found that Mr. Pearson's objection to it is very well founded; namely, that it is difficult in this way to regulate the mercurial action. You may affect the system too much or too little; and you may be taken unawares by the patient's gums becoming all at once excessively sore. Excessive soreness of the gums is always to

be avoided; but I may take this opportunity of observing that you cannot thoroughly depend on mercury as an anti-syphilitic remedy unless the gums be made rather sore, and there be some degree of salivation.

But, as I have already stated, there are cases in which mercury is not proper at all, and in which there are reasons for dispensing with it either altogether or for a time. In some individuals, in private practice, as well as among soldiers, by mere attention to the general health, the disease will be thrown off. A gentleman had a well-marked venereal eruption. He was in London, and was going to take mercury, but was called into the country; and I, therefore, advised him to defer it for the present. Shortly after, being in the country, and under the influence of a purer air, all the symptoms vanished. Similar cases are recorded in Mr. Abernethy's book; and he, as I have already mentioned, concludes (somewhat hastily) that the disease in such cases was not syphilitic. After a mercurial course, it is not sufficient to let your patient go, and say, 'Your disease is at an end.' It is very important that he should be kept in good health afterwards. Where the disease has been allowed to remain for a long time in the system, it is often never so thoroughly eradicated but that, if the health be broken down, it may again show itself. It is always well, after a long mercurial course, to put the patient through a course of sarsaparilla with a view to remove the debilitating effects which the mercury produces. The following case will show how much depends on the state of the general health. A gentleman had secondary symptoms; I put him through a course of mercurial inunction, and for ten weeks he was altogether confined to his house and most carefully attended to. He took mercury for some weeks after the eruption had disappeared. Appearing to be quite well he went to Lisbon, and continued well. But at the end of a year he took cold; and this was followed by a severe attack of erysipelas. A practitioner whom he consulted very indiscreetly bled him to a large extent. An enormous abscess formed; and between the erysipelas, the abscess, and the loss of blood, his health

became completely broken down. While in this state he had a return of venereal symptoms, but of a more severe character than formerly. An English surgeon, resident at Lisbon, put him under a course of mercury and cured him. In cases where symptoms are aggravated by the use of mercury, they may often be removed by sarsaparilla; and in other cases they will subside under the use of the iodide of potassium. It is very much the custom now to administer the latter remedy in cases of syphilis; and there is no doubt that it is productive of the very best effects in cases of disease of the bones, whether syphilitic or mercurial. It is also very useful in some cases of sore throat and eruptions, where there are some especial reasons for not having recourse to mercury. But if you ask me whether, in such cases, you can rely upon it as you can upon mercury, I say, 'Certainly not.' You may remove slight symptoms by giving it in small doses for a long time; and more severe symptoms, by exhibiting it in larger doses; but in the latter cases, so far as I have seen, it does not make a permanent cure, and the symptoms return, even under the use of the remedy. As a prophylactic, iodine is not to be compared with mercury, although it may be taken, under certain circumstances, with the greatest advantage.

I have spoken of the necessity of administering mercury, not only till the symptoms are relieved, but for a considerable time afterwards. But you may ask, whether a long course of mercury be not more likely to injure the constitution than a short one? Undoubtedly it is; and that is the very reason why you should prefer a long course. If the course be a short one, the disease is sure to return; you have then to repeat it, and again the disease reappears. Thus you have repeated courses; and not only is the system weakened by the mercury, but the disease, whenever it does return, assumes a more formidable character than before. But if, on the other hand, you put the patient through a long course in the first instance, such a frequent recurrence to the use of mercury will be unnecessary. A patient who takes mercury for a chancre, for a month or five weeks, may probably never want it

again; but if he take it only for a fortnight, he has secondary symptoms, and then it will be required for at least six weeks, perhaps for ten; so that that which is a short course at first becomes a long one in the end.*

* The different success met with by Mr. Rose with the non-mercurial treatment of syphilis in private practice as compared with that in the army, may be thus accounted for. I was informed by a surgeon who had a large experience in the treatment of syphilitic diseases, who was satisfied with the truth of the statement, that such was the objection that soldiers had to the non-mercurial treatment, that they were in the habit of procuring mercury, and taking it unknown to Mr. Rose. A chemist in the neighbourhood of the barracks had a large business in the sale of the liquor hydrargyri bichloridi.

Many of the objections that formerly existed to the administration of mercury are now met by the improved mode of fumigation, viz. The Calomel Bath.—C. H.

ON TIC DOULOUREUX, OR FACIAL NEURALGIA.

JOSHUA KINGETT, 48 years of age, was admitted into the hospital on the 14th October 1835. He stated that for the last ten months he had been suffering the most severe pain, which was entirely confined to the left side of the face; that this pain at first had an intermittent character; but that latterly it had become constant; and frequently was so acute that, to use his own language, he would have rejoiced if any one had knocked him on the head. At these times he seemed almost to lose the sight of his left eye, and very often suffered from tooth-ache. At the time of his admission the pain was chiefly confined to the cheek and nostril, which were puffy, and tender to the touch. There was no disease to be observed on looking into the nostril. The bowels were always torpid, and the tongue was covered with a whitish-brown fur. He was directed to apply the veratrine ointment, in the proportion of a scruple of the veratrine to an ounce of lard. A portion of this was to be rubbed in on the cheek twice a day, and he was to take five grains of blue pill every night, with a draught containing five drachms of infusion of senna, five drachms of compound infusion of gentian, a drachm of tincture of senna, and a drachm of sulphate of magnesia, every morning.

On the 23rd, having pursued this plan for about a week, he thought that he was a little better. A bad tooth was discovered in the upper jaw, which was extracted. The tongue was a little cleaner. He was directed to take infusion of rhubarb and columbo, of each six drachms, with a drachm of compound tincture of cardamoms, and half a scruple of carbonate of potass, three times daily. He was to go on taking the blue pill.

On the 29th, the report runs thus:—'He has improved rapidly; the pain is now very tolerable; the bowels are open twice daily; the tongue is nearly clean.'

On the 7th November it is said:—'The pain, which had almost left him, returned with great severity two days ago. He has had no sleep since, in consequence of it. The tongue is again white and furred. The medicine was not sufficient to act on the bowels, which have been confined for the last two days. He was directed to take five grains of blue pill every night, and a sufficient dose of compound infusion of senna and sulphate of magnesia every other morning.'

On the 15th it is said that 'he had been again relieved as soon as the bowels were well opened.'

On the 17th November I placed him on the following plan of treatment. He was to take five grains of blue pill, five grains of compound extract of colocynth, with three grains of extract of lettuce every night. This medicine acted on his bowels, so that he has been purged ever since he took it, two or three times daily. He has continued to take it up to the present time. The tongue is now quite clean. He is entirely free from anything that deserves the name of pain, although he has still some feeling of uneasiness in the face.

A violent pain in the face, attacking the patient at intervals—a pain so violent that the patient wishes that somebody would destroy him—and yet there being no disease perceptible in the parts to which the disease is referred: it is to a pain of this kind that we commonly apply the name of tic douloureux, or, as some call it, with more propriety, facial neuralgia. We must regard this case, then, as one of tic douloureux, or, if you please, facial neuralgia.

You will observe, that, besides other classifications which you make of the pains that occur in disease, you may arrange them under these two heads:—There are cases in which the pain is felt where the disease exists, as there may be inflammation in the knee, and pain in the knee in consequence; carcinoma of the breast, and pain in the breast in consequence; disease of the liver,

and pain therefore in the hepatic region. Then there are other cases in which the pain is referred to parts which are not actually the seat of disease. Thus, there may be pain in the knee, while the real disease is in the hip; there may be pain in the shoulder, while the real disease is in the liver; there may be pain in the breast, while the real disease is an hysterical state of the constitution generally.

Tic douloureux, or facial neuralgia, belongs to this last class of pains. The pain, which is felt is referred to some part or other of the face, or to the whole of one side of the face, and yet there is no disease there. You are not to suppose that the cause of the pain in this complaint is always the same; the fact is, the pain is but a symptom, and it may depend upon different causes; so that, among those patients who are said to be affected with tic douloureux, the real nature of the disease varies very much in different cases. There may be half a dozen of persons with tic douloureux in the face, the symptoms in all of them being the same, or very nearly the same, and the real disease may be different in every one of them. The pain, as I have said, has the same character in all these cases, and it differs from the pain of most other nervous affections. You will observe that the branches of the fifth pair are all under particular anatomical circumstances; that they all proceed from that remarkable plexus which is bathed, as it were, in the blood of the cavernous sinus, and that the branches of it all run through bony structures; the second and third branches especially being enveloped in bone to a great extent; and probably it is from one or other of these anatomical circumstances, or from both of them combined, that the pain derives its peculiar character.

The pain in all these cases, whatever may be the cause of it, generally comes on gradually. At first it is a pain which, though severe, may be borne; but at last it becomes quite intolerable—so intense that the patient often says he would rather die than bear it. At first he complains of an odd twinge every now and then in the face; and it generally begins in the cheek where the second branch of the fifth pair of nerves is distributed. The

twinge then becomes more severe, and recurs more frequently. At first it recurs only two or three times daily, and lasts for an instant; then the twinge becomes more severe, of longer duration, recurring several times in the twenty-four hours; and so it goes on increasing. When the disease is at its height, the patient is in as wretched a condition as you can well imagine a human creature to be in. The pain attacks him every quarter or half hour, sometimes oftener, coming on suddenly and unexpectedly at uncertain intervals. He states that at first there is a sensation of spasm, which is followed by a violent and continued pain, accompanied in some cases with a sense of pressure acting from above. You see the patient acting with all the muscles of the trunk, as if it were necessary that he should make this effort in order to support himself under a heavy weight that was forcing him to the ground. This will last perhaps for two or three minutes, and then the pain goes off, and he is again quite well till the attack returns. The recurrence of the pain is always readily induced by the patient's attention being directed to it. If you ask him 'how his face is to-day?' the attack comes on directly; but if you hold him in earnest conversation upon any other subject, it may stay away for half an hour. The patient often is prevented by the pain from going to sleep; but having once fallen asleep he may continue so without the pain recurring for several hours. I have known this to happen even in the very worst cases.

When the pain comes on there is sometimes violent spasmodic

branch, that is, to the chin and even to the teeth. In some cases the tongue and palate are affected also.

In many cases the disease torments the patient for a month, six weeks, or six months, or even for a longer period, and then, without any evident reason, vanishes, and he continues free from it for an uncertain period; after which it recurs, continues perhaps as long as before, and then again subsides. In other cases the disease may vanish, not for a time but altogether, the patient obtaining a complete recovery. In other cases, again, there is never an actual giving way of the disease; it goes on tormenting the patient day after day, month after month, year after year. In such cases there is generally, if not always, some kind of organic disease; in consequence of which other symptoms supervene ultimately. Of these last-mentioned cases I shall speak again presently.

In addition to what I have already stated, it is worthy of notice that the disease affects only one side of the face. I never met with a case in which it affected both sides.

On what causes do these frightful symptoms depend? Many persons who thus suffer have a diseased tooth, and then it is very probable that he or his medical attendant believes that this may be the cause of the pain, and the tooth is drawn in consequence. But I never knew a case in which a patient was relieved of a genuine tic douloureux by the extraction of a tooth; and I remember, in a conversation which I had with an experienced dentist some years ago, that he told me that he had very frequently been called upon to extract teeth on these occasions, and that he was not aware that the operation had been of service in any one instance.

I have said that the disease may depend on different causes. Sir Henry Halford published a paper, in which he gave an account of some cases having (as it was supposed) all the characters of genuine tic douloureux, in which the symptoms seem to be connected with a diseased condition of the bones of the face; and I have no doubt that such is their origin in some instances. There was a man in this hospital, suffering from a pain in the cheek

having the characters which I have just endeavoured to describe, and in whom there was disease of the bone of the upper jaw. If I remember rightly (for I have preserved no notes of the case) he went through a course of sarsaparilla. At all events a piece of bone at last exfoliated, and then the pain was relieved. I saw another case in which there was pain very like that of tic douloureux existing in combination with disease of the upper jaw, but of which I know not the result. But these are rare occurrences. It is a great mistake to suppose that diseased or dead bone is an ordinary cause of this disease. The other sources to which it may be traced are various. You will find it sometimes in young women of an hysterical constitution, a product of hysteria. It would appear that hysterical pain, when it is referred to parts supplied by the nerve of the fifth pair, assumes this peculiar character. At other times the pain is intermittent and periodical, depending on that peculiar state of system which produces the phenomena of ague, and it may then be cured, as ague is cured, by quinine or arsenic. In other cases, again, the disease evidently depends on disease of the digestive organs, and the patient is cured by great regularity as to diet, and by such a course of medicine as is calculated to put the digestive organs into a more healthy condition. In another order of cases the pain in the face is the result of organic disease in the brain. The late Dr. Pemberton, who was for many years physician to this hospital — an excellent practitioner, and engaged in a very large professional practice at the west end of London—in the midst of his career of prosperity became affected with the tic douloureux, and suffered from it in the most horrible manner. I never saw any individual under the same circumstances whose sufferings were equal to his; but I am led to mention his case at present, because, after having retired into the country, he died at last with symptoms of cerebral disease.

There was a gentleman who had suffered from the tic douloureux in the face for a very long time. By and by the pain in the face ceased; but he was attacked with fits of epilepsy. Then there was a ptosis, or a dropping down of the upper eyelid, on the

the tic douloureux had existed previously. At last, after a more than usually severe fit of epilepsy, he fell into a state of apoplexy, and died. Mr. Green, Mr. Freeman, and myself (by whom he had been attended) examined the body. We found all the membranes of the brain bearing marks of chronic inflammation. The vessels connecting the dura mater to the bone were unusually large; the tunica arachnoides was thickened, and, at the upper and posterior part of the left hemisphere of the cerebrum, it was adhering to the inner surface of the dura mater in a spot about an inch in diameter. The cerebrum generally was soft and vascular, exhibiting a red mottled appearance in many places. The softening of its substance was most distinct in the crura cerebri, the fornix, and adjacent parts. The nerves of the fifth pair were carefully examined, as far as they lay within the cranium, but they presented no morbid appearances.

There are many cases in which you cannot trace the tic douloureux to its real source. There is something or another, somewhere or another, in the system, which acts as a source of irritation to the nerves of the face; but where that something is, and what it is, we cannot discover. Indeed, generally speaking, I should say that to trace local nervous affections to their origin is one of the greatest difficulties that we meet with in the practice of our art. The disease may be in one part of the body, and the pain or spasm which it produces may be in another. I have known a patient have neuralgia of the foot, which depended on a stricture of the urethra, and which, whenever it occurred, was invariably relieved by the use of a bougie. I have known another patient have neuralgia of the foot depending on internal piles, which came on when the piles were protruded through the anus, and went away when they were reduced. I have known a spasmodic wry neck, or a nervous pain in the back, to alternate with insanity.

If it were worth while to do so, I might mention other cases illustrative of this observation, that the disease may be in one part of the body, and, from some nervous connection, it may produce pain in some other part of the body. We cannot explain the

matter much further than this. I may, however, venture to make this additional observation—namely, that there is good reason to believe that the seat of those nervous communications on which such sympathies depend is for the most part not in the nerves themselves, but in a higher place—in the brain, or in the spinal chord.

Treatment.—The treatment of tic douloureux, of course, must differ in different cases. In some instances it may be relieved by one method; in others, by another; and I am afraid that we must acknowledge that in many cases it cannot be relieved at all. A very old operation, which had fallen into disuse, has been revived of late years—namely, that of dividing the trunks of the nerves, to the extremities of which the pain is referred. It has been said that if the pain be referred to the extremity of the second branch of the fifth pair of nerves, you should divide the second branch where it passes out of the infra-orbitary foramen on the face; that thus you will cut off the communication between the extremities of the nerve and the brain, so that the painful sensation may no longer be communicated to the sensorium. Now this would be very well if the seat of the disease were really in the extremity of the nerve; but there is no reason to believe that it is so, and there is every reason to believe the contrary.

The irritating cause, whatever it may be, manifestly acts not on the extremity of the nerve, but on its origin; and both reason and experience prove that the division of the nerves below the origin is of no service. I have myself performed this operation without the smallest benefit to the patient.

In the late Dr. Pemberton's case the branches of the nerves were divided by Sir Astley Cooper. Sir Astley did not recommend it, and, if my recollection be accurate, when Dr. Pemberton first applied to him to do it, he declined acceding to his wishes. He did it at last in order to satisfy the patient; but the division of the nerves, instead of giving relief, very much aggravated the evil. It is altogether an unscientific operation, from which we have no more right to expect benefit than we should have from the ampu-

tation of the testicle in a case of pain referred to that organ in consequence of a calculus being lodged in the ureter.

In those cases in which the disease has an intermitting and periodical character, you can always relieve it, as you may all other cases of intermittent and periodical disease, by the exhibition of quinine, bark, and arsenic. But then, if you give quinine, it must be in rather large doses; sometimes in very large ones. I saw this very morning a gentleman who had formerly a nervous pain in the back, almost as bad as tic douloureux in the face. It was intermittent and periodical. I told him, when he consulted me about it, that most probably the sulphate of quinine would cure him. He took ten grains daily without benefit; he took twenty with little benefit; and was not cured till he took half a drachm daily. Whether he had been supplied with genuine unadulterated quinine I will not venture to say; but at all events he must have taken the medicine in very large doses. The combination of bark and arsenic, also, is an excellent remedy in these cases of intermittent and periodical disease; but I generally prefer giving quinine first; it being a more innocent medicine, requiring no watching, and the use of it not being subject to the inconveniences which belong to that of arsenic.

I was consulted, in conjunction with another practitioner, concerning a young lady who had tic douloureux of the face. She was hysterical, and the disease had followed the occurrence of some circumstances which had occasioned great agitation of mind. The case was evidently connected with hysteria, and an irregular state of the menstruation. We gave her steel and ammonia in combination, which put her into better health; and, in the course of a few weeks, the tic douloureux, which had existed for many months, had disappeared.

In those very few cases in which you can trace the pain to disease in the bones of the face, you must, of course, instead of directing your attention to the pain, which is the symptom, endeavour to cure the disease in the bone which produces it. A portion of bone may exfoliate; and if the dead fragment had

caused the pain by pressing or otherwise irritating the trunk of a nerve, the pain may be then removed. In other cases the patient may recover under the use of sarsaparilla, or the iodide of potassium, which, as you know, act most beneficially in a great number of cases of disease of the bones; or, if these fail, he may try the effect of the bichloride of mercury, or calomel and opium, or some other mercurial preparation.

Where the pain depends on organic disease of the brain, you must, of course, direct your attention to the primary affection, although it is probable that, in the majority of cases, you will not be able to render the patient any real service.

If the tongue be furred, the bowels constipated, and there be other indications of the ill-performance of the digestive functions, you may look to this as affording a probable explanation of the neuralgia, and, at all events, under these circumstances the first thing to be done is to ascertain what will be the result of restoring the digestive organs to a more healthy condition. It was on this principle that I proceeded in the case to which I called your attention in the beginning of this lecture; and you see that so far as it has yet been tried, there is reason to believe that the treatment will prove to be successful. As the costiveness has been relieved, and as the tongue has become clean, so has the pain in the face abated. A vast number of diseases depend on derangement of the digestive organs. You will meet with cases proving the truth of this observation daily; and that a patient should suffer from tic douloureux in consequence of a faulty condition of the digestive organs is not more remarkable than that he should have a sick head-ache from an overloaded stomach, or an attack of lumbago from costive bowels.

But let us suppose that you cannot trace the disease to its real source (and so it is in a great number of cases); that the patient in other respects is well; that all the functions are properly performed; that there is this frightful pain, and you have no clue to lead you to the seat of the original malady, and therefore, no clue to the treatment which you should adopt; you are then driven to

the expedient of trying remedies empirically, taking the chance of what they will do. This is a very unsatisfactory mode of proceeding, it must be acknowledged, but you have no alternative. You may give your patient quinine, which is useful in many cases of nervous pain, even though it be neither intermitting nor periodical; or you may prescribe the carbonate of iron, which is supposed (and, perhaps, not altogether without reason) to relieve many neuralgic affections also. Half a drachm of the carbonate of iron may be given three times daily, and the dose may be gradually increased to a drachm. I never knew any good to arise from increasing the dose beyond this; and I can easily conceive that much harm may arise from it being given in those enormous doses in which, as I am informed, it is administered by some practitioners. It is easy to conceive that, where thus exhibited, the colon may be actually clogged by it, just as in other cases it is found clogged by magnesia, or Ward's paste, or cubebs pepper. Whenever you prescribe any of these insoluble substances, you should also prescribe an occasional purgative, with a view to prevent the accumulation of it in the bowel. I have been informed on good authority of the case of a person who died of inflammation of the bowels, the effect of large doses of cubebs pepper which had not been purged off; and it is easy to conceive, that without proper precautions, the exhibition of large doses of carbonate of iron might cause the same mischief.

If the quinine and carbonate of iron fail, it may then be worth while to try the effect of the sulphate or oxide of zinc, the ammonio-sulphate of copper, the solution of arsenic, or some other of those metallic salts which are occasionally useful in cases of epilepsy and other chronic nervous affections.

But having tried all ordinary means without benefit, are you to go on ad infinitum tormenting the patient with medicine? The first rule of our art is to do no harm, and if you have had recourse to all reasonable expedients without benefit, it is not advisable for you to go on making further experiments. *No one can be dosed constantly with medicine without the health being ultimately*

injured by it; and if you have not some reasonable grounds for giving medicine, you have no right to run the risk of doing harm by its continued exhibition. It is much more wise, as well as much more honest when you do not know what to do, to do nothing, and to advise your patient to wait and take the chance of the pain subsiding of itself, as in fact it does in a great many instances. But although you cannot succeed in curing him, you may often succeed in making his life less intolerable than it would be otherwise. Some patients are very much relieved by the use of opium; and there are few with whom it can scarcely be said much to disagree, so that there is no objection to their taking it. Even in these cases, however, it should be exhibited only when the pain is most severe, as otherwise either the dose must be continually increased, or it will lose its influence altogether. The other narcotics, such as the extracts of henbane, lettuce, or of the white poppy, are of no use except in the very slightest forms of the disease. I cannot say that my own experience leads me to have any faith in the extracts of belladonna or stramonium. In all cases it is probable that the patient will derive advantage from a careful mode of life, avoiding all irregularities as to diet, and, as far as that is possible, all unusual demands on the nervous system, whether from mental exertion or anxiety.

If in the observations which I have now made I have confined myself altogether to the constitutional treatment of the facial neuralgia, it is because, in truth, my experience leads me to have but little faith in topical applications. Fomentations and lotions, whatever their composition may have been, have proved, when I had recourse to them, wholly inefficient. I have been informed of a case in which it was supposed that a belladonna plaster had effected an immediate cure. When I have made use of it, however, it certainly was productive of no benefit whatever; and I am very much inclined to believe that in the case to which I have referred, it obtained credit which it did not deserve, in consequence of a spontaneous abatement of the symptoms.

In the present case, one of the first things which I did was to

direct that the part should be rubbed with the veratrine ointment. This has been lately proposed as a remedy possessing a most extraordinary influence over a number of diseases, neuralgic affections among the rest. I saw one patient who thought himself relieved by it of a pain in the forehead, connected with disease of the frontal bone, in the neighbourhood of the frontal branch of the fifth pair of nerves. I was, however, by no means satisfied that the relief really arose from the use of the ointment; and in several other cases I have had recourse to it without the smallest advantage; however, there could be no objection to the use of it on this occasion, and I thought it worth while to make one experiment more;—you have heard the result.*

Although I employed the veratrine ointment in this instance, I did so without any very strong expectations of success. In fact, the statement of its effects which had been published promised a great deal too much, and I should have expected more if it had promised less. I shall take this opportunity of observing, that I am not disposed to try indiscriminately all the new remedies which in these days are being constantly brought before society; nor can I think well of this modern fashion of resorting on all occasions to novel methods of treatment. I advise you, if you wish to succeed in your profession, and to be useful to society, to pursue a different course. Make yourselves masters of the old remedies. Learn how to handle them, and what good they will do, and, as a general rule, have recourse to them in the first instance. If the old remedies fail, and you are at a loss as to what you should do, then, and not till then, have recourse to the new ones. If you always begin with new remedies, you throw away the valuable results, not only of your own experience, but of the experience of those who have gone before you. You have to begin, as it were, de novo; and the first consequence of this will be that you will

* At the time when this lecture was delivered I was not acquainted with the aconitine ointment prepared by Mr. Morson, of Southampton Row. I have now had recourse to it on many occasions, and have no doubt that the application of it in many instances will afford a temporary relief in cases of severe neuralgia.

not cure your patients; and the second, that you will have none to cure. I should be very sorry to see the march of science impeded by an unjust apprehension of experiments and innovations; but, surely, there is a broad enough line between a discreet and prudent use of new remedies, and that indiscreet and hasty use of them which we find to prevail at present in the practice of our profession, and especially in that of its junior members.

ON FATTY OR ADIPOSE TUMOURS.

THERE are different kinds of fatty tumours, but the most common is the following. The fat resembles ordinary fat, except that it is rather of a more delicate and looser texture, and of a lighter colour. It is composed of lobules, having very thin membranes between them, and, externally, there is a very thin membranous bag in which the whole mass is contained. This bag has a very loose adhesion to the parts in which it is embedded, but the adeps which it encloses adheres pretty firmly to it.

These tumours, for the most part, are situated under the integuments, in some part where there is naturally adipose structure. You do not find them *begin to exist* where there is no adeps, as in the loose cellular structure of the scrotum, or eyelids, or in the internal organs. But, wherever natural adipose structure exists, there this unnatural growth of adipose substance may take place. The tumour is often not even detected by the patient himself when of a small size, as it occasions no pain nor any other inconvenience. In some instances, after having attained a certain point, it remains for ever stationary; but for the most part it goes on gradually becoming larger. It generally begins without any evident exciting cause; but occasionally it may be traced to some slight injury of the parts in which it is situated. For example;—A gentleman, while straining to raise his arm as high as he could felt a sort of snap over his shoulder, and soon afterwards a fatty tumour was discovered between the deltoid muscle and the skin. A lady, making some unusual effort with her arm, experienced a similar sensation, and soon afterwards a small fatty tumour showed

itself on the fore-part of the shoulder. The diagnosis of a fatty tumour is generally sufficiently simple. There is a peculiar sensation communicated to the fingers, which it is difficult to describe in words, but which, having once felt it, you will readily recognise afterwards. Sometimes the tumour is elastic, so that you might suspect it to contain fluid. You may every now and then be led into this error, especially in the beginning of your practice. Experience will enable you to distinguish better; and at all events, where you are in doubt, the introduction of a grooved needle will settle the question for you. The tumour is generally well defined; it is neither painful nor tender, and it causes the patient no inconvenience except when of a large size, and then only from its bulk. There seem to be no limits to its growth. I am afraid to trust to my memory as to the enormous size which such a tumour has attained in some instances.

Although, as I have told you, the diagnosis is generally easy, circumstances may occur to make it difficult. A lady had a tumour behind her shoulder, and various opinions had been given as to its nature; in performing the operation for its removal the trapezius muscle was found lying over it, and, on some fibres of the muscle being divided, out started a fatty tumour. As long ago as when I was a student, a lady had what appeared to be a tumour of the breast. She was the wife of a medical practitioner, and had the opinions of three or four of the leading surgeons of the day on her case. One thought that it was a case of fungus hæmatodes; another thought that it was something else; and a third could give no opinion at all. At last it was decided to cut down on the tumour; and on this being done it was found to be a great mass of fat. It had been situated under the gland of the breast, which, being of a large size, concealed the tumour completely, and, being lifted up by it, seemed itself to be enlarged. A gentleman had a tumour of the scrotum. Mr. Lawrence, Mr. Travers, Mr. Edwards, and myself, saw the patient in consultation. The tumour gave to the fingers the impression that would have been given by an omental hernia; and it could be traced distinctly to

the abdominal ring. It was quite distinct from the testicle, but lay behind it. We all found it easy to say what the disease was not, but no one of us could venture to say what it was. As, however, the tumour was certainly unconnected with the testicle, we agreed that it should be removed by the knife, and Mr. Lawrence performed the operation. It proved to be a common fatty tumour, which had had its origin in the adipose substance connected with the spermatic cord within the abdominal ring, and which, as it increased in size, had made its way in that direction in which there was the least resistance, that is, into the loose cellular structure of the scrotum.

When a fatty tumour has a deep-seated origin beneath a muscle, a small portion of it will sometimes present itself, while the rest remains concealed; and this circumstance, if it does not lead to any absolute difficulty as to diagnosis, will at any rate mislead you as to the extent of the disease. Very lately a patient consulted me respecting a tumour below the arm-pit. It seemed to be a common fatty tumour, of about half the size of an ordinary orange, but I could not pass my fingers behind it. It was plain that I could not trace it to its origin; however, I made an incision on it, and then found an enormous tumour proceeding from the axilla. It extended from thence far backwards into the space between the scapula and the ribs. In fact, it was impossible to dissect out the whole of the tumour; and I was under the necessity, having drawn out as much of it as I could, of applying a ligature round it, and removing that portion of it which was below the ligature with the knife, leaving the remainder where I found it.

As a fatty tumour increases in size, the skin becomes dilated in proportion. When it is of a large size, a thick fascia is formed over it, similar to that which is formed over a large hydrocele or hernia. In different parts of the fascia are circular spaces, into which the finger will penetrate, as if into the substance of the tumour. The skin over a fatty tumour very rarely inflames and ulcerates. You might à priori expect that the pressure of the tumour would often produce this effect, but it is not so. I have,

however, known inflammation to take place in the substance of the tumour, and an abscess to form in its centre. A very remarkable case of this kind was under my care in this hospital. An elderly man was admitted, with an enormous fatty tumour on his back between the shoulders, where it hung like a wallet. It had been growing there for a great number of years. A year or two before his admission there had been an attack of inflammation of the tumour, and an abscess had formed in it and burst externally. The abscess never healed, but continued to discharge profusely matter with an oily fluid floating in it. (It may be worth while for me to mention what happened afterwards in this case. I dissected off the tumour, which had a narrow base, so that the operation was a very slight one. The wound closed very rapidly, but when it was quite healed the patient became very ill. I have unfortunately no notes of the case, and I do not remember the precise symptoms, but I know that none of us at the time had any doubt that they arose from the sudden cessation of the profuse discharge of pus and oil from the abscess. The result, however, was that they subsided, and the patient recovered.)

We know of no internal medicine, nor of any local application, by which these tumours can be dispersed; and the only remedy that we can offer to the patient is the removal of them by the knife. This may, of course, be done when the tumour is quite small. I do not, however, generally recommend the operation at this period; 1st, because the tumour may never increase, and as long as it is small it is of no consequence; and, 2ndly, because the operation is really more easy when the tumour has reached a moderate size than it is at an earlier period. Still it is desirable that the operation should not be deferred until the tumour is very large, lest the pressure of the skin in its distended state should cause adhesions to be formed between the thin membrane in which the fatty substance is enclosed and the neighbouring parts. Where such adhesions exist the operation is comparatively difficult, and there is always a danger of some portion of the tumour being left behind. Under ordinary circumstances the removal of the

tumour is, to those who understand the subject, one of the simplest operations in surgery. Make a free incision, not *upon* the tumour, but fairly into its substance. Do not spare the incision of the skin, but let it extend from one end of the tumour to the other. Then lay aside the knife, and you will find that you can easily detach the tumour, cyst, and all, from the neighbouring textures, drawing out one lobe after another, until you find at last an attachment at one corner, where the vessels enter. Here the knife is again required, and there are generally one or two arteries to be secured by the ligature. There is for the most part no bleeding in any other part of the operation. When the tumour is situated under a muscle the operation is to be performed in the same manner, except that the muscle must be freely divided across its fibres in the first instance.

There is another kind of fatty tumour which occurs occasionally, but which has not been, as far as I know, described by surgical writers. In the cases to which I allude the tumour is not well defined; in fact there is no distinct boundary to it, and you cannot say where the natural adipose structure ends and the morbid growth begins. I will relate to you the history of one of several cases of this kind that I have met with, and this will explain as much as I know of the matter. A man came to this hospital several years ago having a very grotesque appearance; there being an enormous double chin (as it is called) hanging nearly down to the sternum, and an immense swelling also on the back of his neck, formed by two large masses, one behind each ear, as large as an orange, and connected by a smaller mass between them. He said that the enlargement had begun to show itself three or four years before, and had been increasing ever since. They gave him no pain; nevertheless they made him miserable, and in fact had ruined him. The poor fellow was by occupation a gentleman's servant, and having so strange an appearance no one would take him into his service. I gave him half a drachm of the liquor potassæ three times daily, and gradually increased the dose to a drachm, dissolved in small beer. When he had taken the medicine

for about a month the tumours were sensibly diminished in size. He went on taking the alkali, and the tumours continued to decrease. It was just then that iodine began to have a reputation, much indeed beyond experience has proved it to deserve, for the cure of morbid growths, and I left off the liquor potassæ, and prescribed the tincture of iodine instead. The effect of this change of treatment was remarkable. The patient lost flesh, while the tumours increased in size. Of course I omitted the iodine, and prescribed the liquor potassæ a second time. Altogether he took a very large quantity of the latter medicine, and left the hospital very much improved, with directions that he should continue to take it with occasional intermissions. I had lost sight of him for some time, when it happened that I was requested to visit a patient in Mortimer Street. I did not observe the servant who opened the door, but as I was leaving the house he stopped me, saying that he wished to thank me for what I had done for him. It was this very patient. He was so much improved in appearance, that he was enabled to obtain a situation as a footman. There were still some remains of the tumours, but nothing that was very remarkable. I have seen some other cases of the same kind, in which the exhibition of very large doses of the liquor potassæ appeared to be of great service. But I have not had the opportunity of trying it, or of knowing the results in every case; and I am informed that in some cases it has been given to a considerable extent without manifest advantage.

These tumours feel like fat; but they may be distinguished from common fatty tumours by their having no well-defined boundary, and by their being less soft and elastic. Such deposits may probably take place in any part of the body; but I have seen them more frequently in the neck than anywhere else.

There is another kind of tumour, which, for reasons which you will see presently, I am led to take this opportunity of mentioning. These also, as far as I know, are not described by surgical writers. A patient applies to you with tumours in various parts of his person. They are situated in the subcutaneous adeps,

give no pain, and are not tender to the touch; they have a well-defined margin, and are of a somewhat firmer consistence than common fatty tumours, to which, in other respects, they bear a great resemblance. They grow to a certain point, then remain stationary, while others show themselves elsewhere; until, at last, there is no part of the trunk or extremities in which they are not to be met with, varying in size from that of a pea to that of a small walnut. They occur in persons who are otherwise in good health, and do not seem to be connected with any other disease. I have never known them to ulcerate or assume the character of a malignant disease. I used to doubt what these tumours were, although their general character led me to suspect that they were a modification of fatty tumours. At last in a patient who had several of them, there was one which, from its unusually large size, caused some degree of inconvenience; so that it seemed advisable to remove it by the knife. On examination, I found it to have the appearance of fatty matter, blended with a larger proportion of a condensed cellular membrane than is observed in the common fatty tumour. I regret that I missed the opportunity of having it examined, either microscopically or chemically.

Any one of these tumours that attains an unusually large size may be removed with the knife; but there being in general a great number of them, it would be absurd to think of removing the whole in this manner. Can anything be done in the way of medicine? I have given to these patients that which I recommended for the cases which I described last, namely, the liquor potassæ in large doses; and, certainly, as far as I have yet tried it, it has appeared to be of service. Indeed, in one case, the tumours nearly or quite disappeared under its use.

It seems probable that in cases of fatty deposits the liquor potassæ operates in the following manner: the oily part of the tumour combines with the alkali, is taken into the circulation, and thus carried off. It was upon this hypothesis, at any rate, that I was first led to adopt this mode of treatment; and it seems to me that the success of it is sufficient to justify the hypothesis. But

may the liquor potassæ be taken in such large doses with impunity? I have no reason to believe that it may not, provided that it be sufficiently diluted. You cannot take more than half a drachm in two ounces of liquid without some inconvenience to the stomach; but you may take a drachm and a half in a large quantity of liquid twice or thrice daily without harm. The best liquid for it to be taken in is fresh small beer. It seems to me to act better when given in this, than when given in any other liquid; and the beer does not disagree with the stomach, because the alkali neutralises every drop of vinegar which it contains. Perhaps the diuretic salt which is formed by this combination is advantageous; but, besides this, the alkali is less ungrateful to the taste when taken in beer than when taken in any other vehicle. However, there are some persons with whom malt liquor really disagrees, even when an alkali is added to it, and there are others who cannot be persuaded that it does not do so; and then milk and water, clove tea, ginger tea, or veal broth may be substituted for it. Under these circumstances, however, the alkali should be exhibited in somewhat smaller doses than when dissolved in beer, as none of it is neutralised.

There is another remarkable kind of fatty tumour, which is, however, of very rare occurrence. A young gentleman had three or four tumours in different parts of his person, which resembled common fatty tumours, except that they were of a firmer consistence. His friends wished that they should be removed. In performing the operation, I found them to be composed of a rather dense fat, covered by a reflected membrane, not less perfect than the peritonæum or pleura, or any other reflected membrane, of original formation. There was one layer covering the tumour itself, except at one point, where it was attached to the adeps in the neighbourhood; and there was another layer, forming a loose bag, in which the tumour seemed to be pendulous, and which was moistened by a halitus. How you are to distinguish these tumours from other fatty tumours previously to an operation, I do not know.

There is a tumour of common occurrence in connection with the female breast, which was, I believe, first described by Sir Astley Cooper, and to which he has given the name of chronic mammary tumour. It is not a very good name, but I know of no other. This tumour is of a peculiar structure; generally lobulated; and when you examine one lobule you find it composed of smaller lobules still, all adhering to each other by a loose cellular texture. It occurs, for the most part, in young women. I was called to see a young lady some years ago who had a tumour on one side of her breast, which seemed to be of this description; and I removed it by an operation. When I examined the tumour afterwards, I found that, although it had much of the appearance of the chronic mammary tumour, it bore considerable resemblance to a fatty tumour also; that is, it contained a good deal of fatty matter. This case called my attention to the subject; and, since then, other cases have occurred which lead me to suspect that the fatty tumour and the chronic mammary tumour stand in a certain degree of relationship to each other; the structure being probably modified by the peculiar organisation of the part in which the disease is situated.

In the case which I have just mentioned the character of the fatty tumour predominated; but I have seen other tumours in which the same character existed, but to a less extent; and even where the characters of the two diseases are most distinctly marked, there is this point of resemblance between them: the adhesion of them to the neighbouring parts is of the same kind, and they are to be removed in the same manner, namely, by dividing the skin, and making an incision into the substance of the tumour, then turning it out with the fingers, and not in general using the knife again, except at one point, where a more complete adhesion to the neighbouring parts indicates the entrance of some small arteries.

In confirmation of this view of the relationship of these two classes of tumours to each other, I may mention the following case. A lady had an enormous tumour of the breast. It did not

feel very different from the natural breast, but it seemed like a breast of a monstrous size. Sir Astley Cooper saw the patient with me. There is such a disease as hypertrophy of the breast; that is, a morbid increase of the gland, without any actual alteration of structure; and both Sir Astley and myself were inclined to believe that such was the nature of the disease in this instance. The tumour continued to grow; the patient became tired of carrying it about, and we recommended her to have it removed. Sir Astley Cooper was present at the operation, and we set about it, believing that I should remove the whole breast. When, however, I had made the first incision, I found that the breast lay perfectly sound in front, expanded over the surface of a large tumour which was situated between it and the pectoral muscle. The first portion of the tumour which I exposed had the appearance of the chronic mammary tumour; then I came to a mass of fat; then to the other structure again. In short there was a fatty tumour and a chronic mammary tumour blended with each other. The entire mass probably weighed between two and three pounds. The patient recovered; and up to this time, that is, at the end of seven years, there has been no recurrence of the disease.

It was the opinion of Sir Astley Cooper that a fatty tumour will sometimes take on the action of a malignant disease, and become a malignant tumour. Whether this opinion was founded on dissections I do not know, but it probably was so; at all events I have no doubt that he had seen cases in living persons (from which, great as the advantages arising from morbid anatomy are, the best part of pathology is to be learned), which justified this opinion; and in confirmation of it I may mention the following case. A farmer from a distant part of the country applied to me on account of what seemed to be a fatty tumour in the back. It was as big as your two fists put together, and had existed for a long time. There seemed to be no reason to doubt that it was a fatty tumour; yet it was a little firmer in its consistence than such tumours generally are. I removed the tumour by an operation, and on making an incision into it afterwards, I found that it was com-

posed of what seemed to be fatty substance, somewhat more condensed than usual; but that, here and there, dispersed throughout the mass, there was another kind of morbid growth, apparently belonging to the class of medullary or fungoid disease. It is reasonable to suppose that if this tumour had been allowed to remain, it would have ulcerated, and run the usual course of a malignant disease.

ON MORTIFICATION.

A PART of the animal body may lose its vitality, while the rest continues to live. We say, then, that it is mortified, and the process by which this change is brought about we call mortification or sphacelus. The term gangrene properly signifies the commencement of mortification, or that condition of the affected part which immediately precedes mortification. But it is somewhat loosely employed, and not unfrequently is used as synonymous with mortification and sphacelus. This change by which a living organ returns to the state of dead matter, viewed in connection with the changes by which it is preceded and those which follow it, is one of the most interesting subjects in the whole science of pathology; the treatment to be employed on these occasions forms one of the most important inquiries belonging to practical surgery; and I am sure that you will not think your time ill-bestowed if I call your attention to these matters in this and the following lectures.

The causes of mortification, as I shall explain to you hereafter,

appellation of sloughing, and the part separated is called a slough. When, however, it occurs in hard parts, as in the bones or cartilages, we call it the process of exfoliation.

Sloughing and exfoliation are accomplished by ulceration of the living parts in contact with the dead. A thin layer of the living parts is absorbed, and the dead part is left lying loose on the ulcerated surface.

The period of time required for the completion of the process of mortification differs according to the circumstances under which the mortification takes place. It may be very slow; it may be rapid; it may be almost instantaneous; as I shall explain to you more fully hereafter. The period required for the completion of the after-process of sloughing varies also; 1st, according to the state of the system, and the activity of the vital powers generally. 2nd, according to the organisation of the part in which the disease occurs (thus, other circumstances being the same, the sloughing of the skin is much sooner accomplished than that of tendon or than the exfoliation of bone). 3rd, according to the state of the neighbouring living parts without reference to that of the general system; thus, if there be much inflammation in them, the ulcerative process proceeds more rapidly than when the inflammation is very slight; and lastly, as long as the mortification continues to spread, there never is, and for obvious reasons cannot be, even the commencement of the process of separation. I have seen mortification begin in an old man's toe, and be gradually spreading, even for months, up the foot and leg, without the least appearance of a line of demarcation, or the least attempt at sloughing. In the same manner, a piece of dead bone may continue adherent to the living bone even for some years. If the disease on which the death of the bone depends can be arrested, as it sometimes can (by mercury, for example, or by sarsaparilla), the exfoliating process begins immediately, and when begun it is completed as soon as under ordinary circumstances.

The separation of the dead part is followed by another series of changes, which terminate in healing, or cicatrisation. But these

changes are not at all different from those which occur when there is a loss of substance in other ways, and it is not my intention, therefore, to enter into the consideration of them at present.

Having offered these general observations on the subject, I shall proceed to consider the various circumstances under which mortification may take place, and the treatment which it requires, accordingly as it arises from one cause or from another.

Mortification from Inflammation.

Mortification is described as one mode in which inflammation terminates. A very intense degree of inflammation may lead to this result in any structure, or in any constitution; but a moderate degree of inflammation may lead to it also in particular cases. Inflammation of cellular membrane terminates in mortification more readily than inflammation of the skin; and in persons of bad constitution the cellular membrane is more likely to mortify than it is in others. You see examples of this over and over again in the cases of the diffuse cellular inflammation which occurs in dram-drinkers. A small puncture of the leg, or a compound fracture, in which the injury is apparently trifling, may cause inflammation extending gradually from the foot to the buttock; and the whole cellular membrane may in the course of a few days become a putrid slough. I have seen a case in which a patient became affected in this manner from a leech-bite; and another in which a similar mischief followed the sting of a bee; and both these patients died. From what has since fallen under my observation, I have little doubt that they were both dram-drinkers, though I was not sufficiently acquainted with the subject to have my attention directed to it at the time. In the case of the man stung by the bee, however, something may perhaps be attributable to the operation of the animal poison; and I shall revert to this point hereafter. I once lost a patient with diffuse cellular inflammation ending in mortification after the simple operation of castration; and I was disposed to attribute this unfortunate result,

in a great degree at least, to the operation having been performed immediately after a long course of the tincture of iodine.

If inflammation of the skin terminates in mortification independently of any antecedent inflammation and mortification of the cellular membrane beneath, the inflammation is usually intense, the surface of the skin is of a dark red colour, and there is severe pain and tenderness. As the inflammation advances the skin assumes a livid appearance; a serous fluid is thrown out under the cuticle, which is thus elevated in the form of blisters, and then the skin itself perishes. If the mortification takes place to any great extent, the general system suffers. The pulse is feeble, irregular, intermitting; the countenance is anxious; the skin becomes cold; there is an utter incapability of exertion; and after a few days, and sometimes sooner, the patient dies. If the constitution does not suffer in this manner, or if the patient survives the shock, after a few days the separation of the slough begins to take place, and this is the first step towards a complete recovery.

In cases of diffuse cellular inflammation, the occurrence of mortification is preceded by an abundant infiltration of serum. In some instances the serum is of a peculiar yellow colour, and the skin over the whole body, and the tunicæ conjunctivæ of the eyes, may assume the same appearance. I do not know to what cause this yellow tinge is to be attributed. The patient looks as if he were jaundiced, but he is not so in reality, for there is no bile in the urine. When mortification of the cellular membrane has begun to take place, the constitution suffers in the manner which I have just described in speaking of mortification of the integuments. If the patient survives the shock, or lives for some time under it, the mortification of the cellular membrane is invariably followed by mortification of the skin over it to a greater or less extent.

Allowing for the difference of function in the affected organs, the foregoing description will apply pretty nearly to all cases in which inflammation of the soft parts terminates in mortification.

If there be mortification of the intestine, there is an effusion of dark-coloured serum into the abdominal cavity. Whenever the part which mortifies is situated internally, so that the putrid serum formed round the slough cannot escape, the constitution suffers much more than where it is situated externally, and especially an intermitting pulse and hiccough are often added to the other symptoms. Probably these more aggravated symptoms are to be attributed to the exhalations from the pent-up putrid matter being in part absorbed into the circulation. I shall mention some circumstances hereafter which seem to favour this opinion.

It forms an interesting subject of inquiry, How is it that inflammation terminates in mortification; or what is the pathological explanation of this phenomenon? And this leads us to the question as to the nature of inflammation itself. Mr. Hunter describes it as consisting in an increased action of the small blood-vessels. If increased action be indicated by a greater degree of contractility in the coats of the vessels, the theory is evidently wrong; for microscopic examination proves that there is no such thing. But, in fact, this is not what Hunter meant; and in another sense of the words he is clearly right; for the vessels of an inflamed part secrete serum, lymph, and pus, and build up new structures; in short, they do many things which they do not do under ordinary circumstances; and all this affords an abundant evidence of increased action. Another theory of inflammation which has been of late promulgated in opposition to that of Hunter, is that the essential part of it is a debility, or a weakened state of the capillaries; and the propounders of this theory refer to the dilatation of these vessels in proof of it. But I own that I can discover no reason to believe that the dilated state of the capillaries proves anything, except that there is something in the condition of an inflamed part which makes a greater supply of arterial blood necessary, and that these vessels have the power of adapting themselves to these new circumstances. Nor is this power limited to the capillaries. It exists in the arterial trunks, in which the capillaries have their origin. Thus, in an animal killed by arsenic

in whom the poison produces extensive inflammation of the mucous membrane of the stomach and intestines, the branches of the mesenteric arteries are seen dilated to double their natural diameter. In like manner, when muscles are in exercise, or when a gland is pouring forth an abundant secretion, the capillaries become dilated so as to admit the increased quantity of blood which, in consequence of the greater activity of the organ, is required; but no one pretends to say that they are therefore in a state of debility; and I see no difference, in this respect, between these cases and that of inflammation. But microscopic examination proves something more than the mere dilatation of the capillaries. 'The blood itself is affected. It loses its globular structure; and, previously to this, the globules themselves are observed to have lost their repulsive properties, and either to agglomerate together or to adhere to the sides of the vessel in which they are contained, and not unfrequently they seem to stagnate, so as to choke up the vessel altogether, and destroy the circulation in it.' Now if this happens in many of the capillaries it is plain that the vitality of the part cannot be maintained, and thus the occurrence of mortification is easily explained. Other circumstances, however, may combine to produce the same result. For example, let us suppose a case of inflammation of the cellular tissue of the scrotum. The cells are filled with serum. They are fully distended, and the skin is on the stretch. If nothing be done to the part, the cellular membrane first, and the skin afterwards, will mortify to a great extent; but make a few incisions with the point of a lancet, serum escapes in sufficient quantity to relieve the tension, and the mortification is in great measure, or perhaps wholly, prevented. It is reasonable to suppose, that, in consequence of the extreme distension, the fluid in the cellular membrane causes so much pressure on the vessels which supply the skin as to impede the passage of the blood through them, and that the punctures of the scrotum and the escape of the serum prevent the mischief which would have otherwise ensued, merely by removing the pressure. When a common abscess opens, as it sometimes does by mortification

and sloughing of a portion of the skin over it, we are not to regard the mortification as the mere result of inflammation, any more than in the case which I have just stated. The ulcerative process going on under the skin destroys a portion of the vessels by which the skin is supplied; the pressure of the matter prevents the free passage of the blood through those which remain; and thus, a due supply of blood being prevented, the skin perishes.

Treatment of Cases in which Inflammation terminates in Mortification.

Whatever tends to lessen the violence of the inflammation, ought to prevent, or check, the progress of the mortification; and, on these grounds, it may be expected that the patient will derive benefit from the abstraction of blood.

But, on the other hand, the abstraction of the blood, by which the life of a part is supported, if carried beyond a certain point, is of itself an adequate cause of mortification; and the abstraction of even a small quantity of blood may lead to this result under certain circumstances.

It is not by a reference to principles alone that you can learn how you should act in this dilemma. Experience is our safest guidance; and on this, as on many other occasions, the practical surgeon will have a great advantage over the mere scientific pathologist.

If the inflammation be intense, if the pulse be strong and full, the countenance flushed, and the skin hot—that is, if there be marks of great general excitement of the system—it is probable that the patient will derive benefit from blood-letting; and if you have reason to believe that he is of what may be called a robust or even a sound constitution, blood may be drawn to a considerable extent, and the blood-letting may be repeated. I have adopted this practice under these circumstances, not only where the appearance of the parts was such as to indicate that mortification was impending, but where it had actually begun; and have had the satisfaction on several occasions of seeing the progress of the

mortification immediately suspended. You will have no better opportunity of watching the beneficial results of such a mode of treatment than in some cases of sloughing sores or chancres on the glans penis. While you administer opium and stimulants the marginal inflammation increases, and the slough continues to extend;—take some blood from the arm, the inflammation becomes abated, and the progress of the slough is suspended. Repeat the blood-letting, and the sore assumes in a short time a healthy aspect. In such cases I have known nature accomplish what was wanted, while a timid surgeon was doubting how to act. There has been a spontaneous hæmorrhage; the patient has lost half a pint, or even a pint, of blood. Immediately, the pain, the tension of the surrounding part, the redness, and the general excitement have been relieved, and in the course of a week the sloughs have separated, and the sore has become covered with healthy granulations.

But there are other cases in which blood-letting would be as mischievous as it is useful under the circumstances which I have just described.

Let us suppose a patient who has been a dram-drinker; or who, belonging to the more affluent classes of society, has indulged in too copious libations of wine; or whose constitution has been otherwise impaired; and that he has received some injury of the leg, followed by diffuse inflammation, which threatens to terminate in sloughing of the cellular membrane, and afterwards of the skin; or that after such an injury mortification of these textures has already begun; let us suppose also, that, although inflammation is spreading rapidly, there are signs of debility, the pulse being small and feeble, and the countenance expressive of anxiety: now, if, under these circumstances, you abstract even a moderate quantity of blood, it is probable that you will hasten the progress of the local mischief; and if blood-letting be employed to a considerable extent, it will certainly destroy what little chance there might otherwise have been of the patient's recovery. Let us suppose another case. There is a chancre or

other sore on the penis. It is surrounded by a languid inflammation; the neighbouring parts are gradually assuming a dark livid appearance, the pulse is small and quick, with no inflammatory excitement of the general system; under these circumstances, also, the extraction of blood, instead of checking, will cause a more rapid progress of the disease.

It is highly important that you should learn to distinguish these two classes of cases from each other; and in a great number of them you will have no difficulty in doing so. You cannot, however, draw any exact line between them; and cases will occur in practice, in which you will not be able to determine, in the first instance, which is the proper course for you to pursue. Here you must proceed cautiously, watching daily the operation of the remedies which you employ, and persevering in one mode of treatment, or adopting another, according to the effect produced; and sometimes it may be right to take away a moderate quantity of blood in the first instance, and to have recourse to an opposite mode of treatment almost directly afterwards.

In order that I might bring the subject before you in the simplest form, I have hitherto referred merely to the question of blood-letting. But, of course, this involves much other treatment. Where blood-letting is proper, active purgatives will be proper also, as well as saline and diaphoretic medicines; and everything in the shape of stimulating liquors and food should be avoided. Where blood-letting, on the other hand, is improper, though aperient medicine may be required, very active purgatives should be avoided: the patient should be allowed such diet as his stomach is capable of digesting; and he should have wine or ale, or even brandy or gin; the quality, as well as the quantity, of the stimulus varying according to the character of the symptoms, and his previous habits. I say his previous habits, for it is essential that you should always inquire what these have been, and act accordingly. It is rarely safe to deprive a dram-drinker for any considerable time altogether of his usual stimulus; and the effect of a judicious exhibition of it is very remarkable, not only in arresting the progress of mortification,

but in abating the violence of the inflammation which leads to it. Decoction of bark, quinine, and other tonics, may be useful under certain circumstances; but I must say that the longer I live, and the more I see of these cases, the less is my faith in such remedies, while inflammation and mortification are going on; and I am satisfied that they often do great harm, by loading the stomach, and interfering with the digestion of food. At a later period, however, when the progress of the mortification is stopped, and the sloughs are beginning to separate, I have no doubt that they are eminently useful. The repeated trials which I have made, and seen made, of ammonia have not left on my mind any more favourable impressions of this remedy than those which I entertain of bark and quinine. It is a temporary stimulus; but alcohol, prudently administered, is much better; and my observations lead me to suspect that large doses of ammonia, if persevered in for a considerable time, tend to depress the vital powers, and lessen the chances of recovery. Opium is useful under certain circumstances; as where there is severe pain, or where the inflammation and mortification depend on the operation of a specific poison.

I have already had occasion (with a view to explain the pathological phenomena of mortification) to advert to the effects of incisions made through the skin into the cellular membrane, when the cells of the latter are exceedingly distended with serum. Whether the explanation which I then ventured to offer of the mode in which this serous infiltration operates in producing mortification be or be not correct, there can be no doubt that the evacuation of the serum, and the consequent relief of tension, will go far towards preventing an extensive mortification in all cases, and will prevent it altogether in a great many. It is not, however, always necessary for this purpose that we should make scarifications or incisions. Mere acupunctures are not unfrequently sufficient. I have, on many occasions, requested the house surgeon of this hospital to make punctures where this serous infiltration of the cellular membrane was going on every morning and evening, or whenever he found occasion to do so; and it often has happened

that nothing more was required. But, of course, this simple practice is useful only in an early stage of the disease—where there is that state of things which may lead to mortification, but where mortification has not actually taken place. Where sloughs of the cellular membrane have begun to form, or where an infiltration of pus has begun to follow the infiltration of serum, mere punctures will be insufficient. Incisions or scarifications will then be required; and they should be of sufficient extent to allow the serum and pus to escape freely, and to relieve the tension of the skin. But they should not be more than this: 1st, because such painful operations are a great shock to the nervous system of a person in vigorous health, and a very great one indeed to one who is weakened by previous diseases (and it is to be observed that this shock is not given to the system once for all, as, if the inflammation spreads, it may be necessary that the incisions should be repeated); 2nd, because in proportion to the extent and depth of the incisions, is the danger of hæmorrhage, the occurrence of which, to any considerable extent, is sufficient to prevent the patient's recovery. In making the incisions you should always bear in mind that it is of vital importance that there should be as little hæmorrhage as possible; and here you will find the advantage of having some active and intelligent assistants, who will carefully watch your lancet or scalpel, and whenever they see a vessel beginning to bleed, make pressure with the finger on it. Ligatures may be sometimes required, but not in general. The divided vessels, under these circumstances, bleed most profusely in the first instance, but they soon contract; and the pressure of the finger for a few minutes is usually sufficient to stop the hæmorrhage altogether.

The foregoing observations apply to all cases in which inflammation of cellular membrane has already begun to terminate in gangrene, or threatens to do so, whether the inflammation be phlegmonous or erysipelatous, or that peculiar variety of inflammation which produces carbuncle. The effect of scarifications in preventing the further progress of mortification of the skin in all

these cases is very remarkable; but, under certain circumstances, they produce a still greater benefit to the patient. Whenever putrid matter is pent up round a slough of the cellular membrane, the system is poisoned by it. The sulphuretted and carburetted hydrogen gas evolved during the decomposition of dead animal matter, seem to pass, in part at least, into the circulation, producing the most dangerous symptoms. The incisions which relieve the tension of the skin allow these noxious gases to escape, and the relief which this affords to the patient is very remarkable. I might, if it were necessary, enumerate a great number of cases in illustration of what I have just observed. One, however, will be sufficient; and this I am tempted to relate, because the case is in itself of great interest, and also because a particular instance may serve to impress the rule more on your minds than a mere general observation. I was called, some few years since, to see a gentleman, who appeared to be actually on the point of death. His extremities were cold; his pulse barely perceptible. It was doubtful whether he was sensible or not. He made, on being roused, several imperfect attempts to speak, but could say nothing intelligible. Below the right hypochondrium there was a considerable tumour, the skin being of a dark red colour, on the verge of mortification. On examination with the fingers, I perceived a sort of emphysematous crackling, and an imperfect fluctuation. Having made a free incision, I discovered, underneath the discoloured skin, what might be called a quagmire of slough. A small quantity of putrid matter escaped; but there escaped also such a quantity of noisome and offensive gas, apparently sulphuretted hydrogen, that I could scarcely bear to remain in the room. The stench pervaded the whole house, and even could be perceived in the garden round it. Within two minutes after the performance of this operation, so trifling in appearance, but so important in reality, the patient looked up, and said, quite distinctly, 'What is that you have done which has made so great a difference in my feelings?' At the same time the pulse returned at the wrist; and from this moment he recovered, without any further

unfavourable symptoms. After a few days sloughs came away, probably of muscle, cellular membrane, and peritoneum, in a confused mass, and, with them, a gallstone of moderate size; explaining to a certain extent, at least, the origin of the disease.

The cases in which you will most frequently have occasion to resort to the employment of scarification are those of diffuse cellular inflammation of the extremities, whether it be phlegmonous or erysipelatous. But there is another class of cases, which occur after injuries, and often after slight injuries, of the scalp, in which the same treatment will be required; to which, before I conclude this present lecture, I am tempted to draw your attention: both because they will serve to illustrate the observations which I have already made: and, because the disease is one with which you ought to be made acquainted, but which, as far as I know, has not been distinctly described by surgical writers. Here, as in cases of erysipelas of the skin, there is a rigor followed by an attack of fever preceding the local symptoms. The latter show themselves in the form of pain in the neighbourhood of the wound or contusion, and an œdematous swelling of the scalp, without any redness of the skin. The swelling pits on pressure. It spreads over the whole scalp to the forehead, and sometimes over the whole face, the skin still retaining its natural colour or even appearing paler than natural. The progress of the swelling is accompanied by pain in the head, and a continuance of febrile symptoms. In some cases, the disease, after having continued for ten or twelve, or perhaps fourteen days, begins to subside; the serum which caused the œdematous swelling being gradually absorbed without any further mischief. In other cases, suppuration takes place underneath the scalp with extensive sloughing of the cellular membrane, and this is followed by sloughing, not only of the scalp above, but of the pericranium underneath. I have known the latter destroyed to such an extent as to lay bare a large portion of the bone of the cranium. If you would prevent all this great mischief, you must by one method or another relieve the tension caused by the œdematous effusion into the cellular membrane. Simple acupunc-

tures are generally sufficient for this purpose, provided that they are made at an early period, and repeated once or twice daily for several successive days. Where a sufficient quantity of the serum does not escape by the punctures, or sloughs of the cellular membrane have already begun to form, larger openings are required, and incisions must be made, through the scalp and the subjacent textures, quite down to the cranium. These must be repeated from time to time, as the disease extends from one part of the scalp to another. The appearances observed, when these incisions are made, explain, in some degree, the seat and nature of the disease. There is a slight effusion of serum immediately underneath the scalp; but the great effusion, and that on which the tumefaction chiefly depends, is underneath the tendon of the occipito-frontalis muscle; and here the effusion is in some instances so extensive, that I have known the tendon to be separated as much as half an inch, or even more, from the pericranium. A large quantity of serum escapes immediately on the incision being made; the tension is of course relieved, and the destruction of the parts is prevented. I suspect this disease to be a modification of erysipelas. The symptoms are nearly similar, except that there is no redness of the skin, which indeed usually appears to be paler than usual. In confirmation of this opinion, I may mention that in a few instances the true erysipelatous character is exhibited as soon as the inflammation has extended from the scalp to the face. The disease is not arrested by blood-letting, or by what are commonly called antiphlogistic remedies. It occurs in persons of a debilitated habit, and requires almost from the beginning an opposite mode of treatment. Such nourishment should be administered as the stomach will bear, with wine or porter; and where the tongue is clear and moist the decoction of cinchona may be given with advantage.

Let us now suppose that mortification has taken place to a certain extent; that the progress of it is arrested; and that the

system survives the shock;—What further local treatment is required?

Indeed, I have little faith in any. The separation of the slough is a natural process. It is usual to employ stimulating, or, as they are called, digestive ointments: solution of chloride of soda; stale beer poultice; and other applications of the same kind. But my own experience would lead me to believe that the process of separation will go on just as fast with the simplest treatment, such as that of bread-and-water poultice, or a linseed poultice, or wet lint with a piece of oiled silk over it. The constitutional treatment, at any rate, is of much more importance than any topical applications. Tonics may at this period be given with advantage; but the discreet administration of wine and a nourishing diet is of more importance still. Of course no general rule can be laid down. You must study the existing symptoms, and act accordingly.

Mortification from Ligature.

I now call your attention to some other varieties of mortification.

A ligature drawn round any part of the body, so as to intercept the communication with the great vessels and the heart, may cause that part to perish. But the effect of the ligature is not the same in all cases; and it does not always produce mortification in the same way. You apply a bandage round the arm before you bleed a patient, to make the veins of the fore-arm become distended, the object being merely to impede the circulation in the superficial veins. If you take it off at the end of a few minutes, the hand is at once just as it was before the ligature was applied. If you were to leave it on twelve hours, the whole hand and fore-arm would become swollen, and would remain swollen for some time after the bandage was removed. The swelling in such a case arises from the congested state of the veins, and from the consequent effusion of the serum of the blood into the cellular mem-

brane. The first effect, then, of a ligature which obstructs the circulation without arresting it completely, is to produce serous infiltration of the cellular membrane, and an œdematous swelling. The different kinds of dropsy depend on the same principle. Disease in the heart, impeding the circulation through it, gives rise to anasarca of the legs and dropsy of the pericardium and pleura. Disease of the liver, by obstructing the circulation through the vena portæ, produces dropsy of the peritonæum.

But let us suppose that a ligature applied in this manner round the arm, were allowed to remain, so that the impediment to the circulation continued. A low sort of inflammation would set up, the œdematous swelling and the tension would be aggravated, and might terminate in mortification.

This is one kind of mortification from ligature. But let us suppose that the ligature is drawn tighter still; that it completely intercepts, not only the venous, but the arterial circulation. It is evident that the part below the ligature, being altogether deprived of that supply of scarlet blood which is necessary to the maintenance of vitality, must lose its vitality; and this, then, is another way in which a ligature produces mortification.

In the course of your practice you will meet with numerous cases illustrative of the different effects of ligature according to the degree of constriction which they occasion. Thus, a woman has a femoral hernia; a large portion of intestine is protruded through the narrow crural ring in the act of coughing; the ligature is as tight as possible. Strangulation is complete. The arterial circulation, as well as the venous, is wholly obstructed. If you perform the operation for strangulated hernia on such a patient, even in half an hour you may find the intestine dead. But if (as generally happens) the degree of constriction be less in consequence of the opening being of larger size, or the protruded intestine being smaller in quantity, then the venous circulation is obstructed more than the arterial; there is no mortification immediately; there is venous congestion followed by inflammation, which may end in mortification in the course of two or three days,

or, perhaps, not until after the lapse of a longer period. A man has a phimosis. He pulls back the præpuce, and the orifice becomes a stricture behind the corona glandis. There is venous congestion; the gland is swollen, assumes a purple colour, then becomes inflamed, and the inflammation is followed by mortification. Again a patient has internal piles; they protrude at the anus; the sphincter muscle acts spasmodically upon them; they cannot be pushed back through the sphincter; the return of venous blood is prevented; they swell, inflame, and, in the course of a few days, they mortify. By and by the slough drops off, and the disease is cured.

You will now understand the principle which ought to be kept in view, when we use ligatures in surgical operations. You treat internal piles by the application of a ligature. If you draw the ligature only moderately tight you do not kill them at once; they swell; they inflame; they may die at last, but by a painful and tedious process. If, however, the ligature be drawn as tight as possible, it stops the flow of the arterial as well as of the venous blood, and the piles die directly. This is the way in which a ligature should be applied in almost all cases in which you have recourse to it as a means of cure; it should be drawn as tight as possible. In dealing with piles, or nævi, or tumours of the tongue, the strangulation made by the ligature should be complete, otherwise not only are the sufferings of the patient aggravated, but it may happen that severe constitutional disturbance will ensue.

I have said that when you apply a ligature in a surgical operation, your object should be to stop the flow of arterial blood at once; and you might suppose that if the ligature were kept on for half an hour, or an hour, that this would be sufficient; that the part being deprived of the flow of arterial blood for such a time it would certainly lose its vitality. But this is not exactly the case. You apply a ligature round an artery, draw it as tight as is possible; it divides the middle and inner coats, but only compresses the outer coat. It makes a slough of a little piece of the latter; and when the ligature comes away at the end of ten days or a fortnight, you

find the slough in it. But if you cut off the ligature in half an hour, or an hour,—an experiment which has frequently been made,—there is no slough. The artery may be obliterated, or it may not, by the effusion of lymph; but the piece of the outer coat that was included in the ligature recovers itself; at least we do not find that it comes away as a slough. I had a patient with a malignant tumour of the tongue, which, according to the method suggested by Sir Everard Home, I determined to remove by ligature. I drew the double ligature as tight as I could; and when I saw the patient half an hour afterwards, the piece of the tongue thus strangulated was quite livid, and apparently dead. I saw him again in three or four hours, and found him suffering a great deal of pain and inconvenience. It occurred to me that the piece of the tongue had been dead for some time, and that there could be no objection to my giving him relief by cutting off the ligature. With some little trouble I succeeded, but, to my great annoyance, the next day I found the whole piece, which had appeared to be dead, to be still living. The ligature, therefore, in surgical operations, must not only be very tightly drawn, but left on until it is separated by a natural process.

Mortification from Pressure.

Parts may be killed by a continued pressure. The mode of death here is nearly the same as when they are killed by ligature, the difference being simply this; the pressure is like a ligature applied to a broad surface, operating not merely on the principal vessels, but also on all the small vessels and capillaries. Mortification from pressure is chiefly observable when the pressure is made on parts which lie over a bone; where there is no cushion of flesh between the latter and the skin. If the pressure be very great, it may produce mortification immediately. I remember that when I was a student, a man came into the hospital with a fracture of the leg. The surgeon applied splints, and drew a very tight bandage over them round the foot. The next day the man

was in a great deal of pain and suffering. The bandage was removed, but it had already occasioned a broad slough of the skin over the instep. I have, in other instances, seen sloughs produced in the same manner, almost instantaneously, in consequence of bandages being applied too tight.

But in the greater number of cases where mortification is the result of pressure, it does not occur immediately, but after the lapse of some time; and it is not a direct, but a secondary consequence of the pressure. A man, for instance, is bed-ridden; he lies on a hard mattress; he becomes emaciated; the skin over the os sacrum becomes tender to the touch; it inflames, assuming a dark red colour; vesications form upon it; the inflammation goes on, and ends in mortification. Pressure, then, may produce immediate mortification in some instances, but in ordinary cases it does so by causing inflammation first, which inflammation, the pressure being continued, ends in the same manner.

This kind of mortification from pressure takes place under certain circumstances more readily than under others. A patient is weakened by continued fever, and, from the state of debility in which he then is, pressure on the skin over the os sacrum, the great trochanter, or other projecting parts of bone, will produce mortification, while it would not produce it if he were in a state of health. After injuries of the spinal chord mortification from pressure is very readily induced. In a case in which the spinal chord is injured in the middle of the back, you may find, almost before you may suspect that there is anything wrong, a great slough over the sacrum,—nay, the pressure of the mattress on the ankles will in such cases produce the same mischief. I have known mortification begin in the ankle within twenty-four hours after an injury of the spine; and a remarkable circumstance it seems to be that injuries of the spinal chord should thus lessen the vital powers, so as to make the patient liable to mortification, when we consider how many circumstances there are that would lead us to doubt whether the nerves have any influence over the capillary circulation. The circulation viewed by a microscope, in

a frog's foot, goes on just the same whether the nerves are divided or not. In an experiment which I was making on poisons, I divided all the nerves in a dog's axilla; I then divided not only the skin which was attached to the anterior extremity, but also the muscles and cellular membrane, so that there was an absolute want of union between the extremity and the trunk, except by means of the axillary artery and vein which I left untouched. The animal, at the expiration of twenty-four hours, was killed, but the limb maintained its vitality all the time. In spite, however, of this and of other cirumstances which I might mention of the same kind, even a concussion of the spinal marrow will make the patient liable to mortification of the parts below.

Patients are more or less disposed to mortification from pressure, accordingly as they are more or less emaciated. A man with a cushion of fat between the skin and the os sacrum, or the skin and the great trochanter, is in less danger of such mischief than another person. The explanation of this is sufficiently obvious.

When you suspect that pressure on any part is so great as to be likely to occasion mortification, you can do nothing but remove the pressure. When a bandage is applied in a case of fracture, you must remove it as soon as you suspect that the swelling of the parts has increased the tension, lest mortification should follow. When a patient has been so long confined to his bed, that you expect mortification to take place, you should bear in mind that it is more easy to prevent it than to stop it when it has once begun. How, then, is this to be accomplished? If a patient lies on his back, the skin sloughs over the os sacrum; if on one side, then it sloughs over the great trochanter. Endeavour, when he can manage it, to make him vary his posture. Let him lie at one time on his back; at another, on his side; nay, let him turn round, and lie occasionally on his face. If you have what they call a prone couch, properly constructed for the purpose, he may, in many instances, use it to great advantage. In one of the worst cases of this kind, when mortification had begun, I used to turn

the patient on his face, during many hours in the day, and with perfect success. But sometimes the patient cannot be shifted. There may be fracture of the thigh, and he must always lie on his back; you must then endeavour to take off the pressure by other means—by an air cushion with a hole in the centre, the tender part over the os sacrum being in the hole of the cushion. But in all cases where you use an expedient of this kind, you should first apply a piece of common soap plaster, spread on calico, over the part (or, what is still better, the amadou spread with soap plaster, which I have mentioned in a former lecture), to support it. If you merely place the hole of the cushion under the os sacrum, the skin will bulge into the hole, and the patient will be as badly off as if there were no hole at all, or even worse. In cases where you can have recourse to it, Dr. Arnott's hydrostatic bed is very useful in preventing these ill consequences. When you lie on a mattress, the pressure is thrown on all the prominent parts of the body, and there is very little elsewhere; but in using the water-bed the water rises to fill up the hollow places, and the pressure is not greater on the sacrum than it is on other parts. Undoubtedly this bed is the best method which has yet been contrived for the equal diffusion of pressure; the only objection to it is, that it is not applicable to all cases. In cases of compound fracture of the thigh or leg, for example, it would not give sufficient steadiness to the injured limb.

But another plan may be adopted to prevent mortification from pressure; that is, to prevent the inflammation which precedes it. The thicker the cuticle the more it will protect the parts beneath; you may, if you attend to it in time, add to the thickness of the cuticle by stimulating the surface of the skin. Nurses know this very well, for when patients are bed-ridden they wash the parts subjected to pressure with brandy. What is still better is a lotion composed of two grains of the bichloride of mercury to an ounce of proof spirits. When you think that a patient is likely to be confined so long in bed that sloughs may be formed on the os sacrum, begin at an early period to wash the parts two or three

times a day with this lotion. I have found it useful in other cases where a patient suffers from pressure. For example, in a case of hernia, which requires to be supported by a very powerful truss; the truss galls and frets the skin, and may at last cause inflammation and sloughing; but under the use of a stimulating lotion a thicker cuticle is generated, and such mischief is avoided.

The sores which remain after the separation of a slough produced by pressure are to be treated like common sores; this being kept in view, that fresh sloughs will form if the pressure be continued. You must, if possible, contrive to take the pressure off these sores; but, unfortunately, it is not always possible for you to do so, and in spite of all your care and trouble, it will sometimes happen that slough will form after slough, exposing the sacrum or trochanter, or other bony structures, whatever they may be.

Mortification from Contusions and Traumatic Gangrene.

I next draw your attention to cases of mortification from a blow or other mechanical injury. It may be said that pressure is mechanical injury, but I now speak of a sudden injury operating for a short space of time, such as a contusion or a wound.

The effect of mechanical injury may be to produce mortification, which is confined to the parts actually injured. For instance, a man gets a kick on the shin, and the next day there is a slough of the skin, where the injury was inflicted. The kick has squeezed the skin against the bone, ruptured the capillary vessels, and destroyed the organisation in the part, so that the circulation could not go on. But here the mortification is confined to the part actually injured. A remarkable circumstance happens in some of these cases. The cellular membrane has not so much vitality as the skin; and, therefore, perishes more easily. A blow will disorganise the cellular membrane which will not disorganise the skin. A man came into the hospital who had had a severe blow on the instep. There was a purple appearance, but no very extensive ecchymosis; and I thought nothing of it. The next

day I found the part inflamed; the following day there was a good deal of swelling; and on the third day the skin was beginning to slough. I divided the skin with a lancet, and found a large slough of the cellular membrane. The blow had pressed the skin and the cellular membrane against the bones of the instep, and had killed the cellular membrane, but not the skin. The slough of the cellular membrane would have been followed by an extensive sloughing of the skin, if, acting on the principle explained in my last lecture, I had not divided the latter freely. In cases in which you suspect that the cellular membrane may be destroyed, while the skin is not, you must watch the patient; and if there be swelling and inflammation you should divide the skin, and save it from perishing as far as you can, though you cannot save it entirely.

But in other cases the mortification is not confined to the part actually injured, but may extend to the greater part of the limb. These are the cases to which the name of traumatic gangrene more commonly is applied. A severe injury is inflicted on the leg, and a large portion of it mortifies. It would appear that the mode in which traumatic gangrene is produced varies in different cases. Mr. Guthrie, for example, describes a case in which mortification of the leg took place as high up as the knee, in consequence of a blow on the back of the leg. The limb was amputated; and when he came to dissect the parts, it was found that the blow had lacerated the lining membrane of the popliteal artery, in consequence of which there had been effusion of lymph into the cavity of that vessel, stopping it up. That alone might not have produced mortification, but the anterior and posterior tibial arteries were torn through also; and the result of this double injury was, that the limb, not getting a proper supply of blood, perished. In this case the pressure of extravasated blood might have contributed, in some degree, to produce the mortification. But local extravasation of blood, if it exist to a very great extent, is, of itself, sufficient to produce this effect. When I was house-surgeon, a man was brought into this hospital with some kind of tumour above the groin, but no pulsation was felt in it; and no

one suspected that it was an aneurism. There was severe pain felt in the thigh, evidently arising from pressure on the anterior crural nerve, and the event proved that there was an aneurism, though it had not been indicated by the usual signs. It burst one day into the cellular membrane. The man screamed out as if he was being murdered, so horrible was the pain. The next day there was gangrene as high up as the groin, and death ensued in about a fortnight. On dissection, we discovered that an aneurism of the external iliac artery had burst under Poupart's ligament into the cellular membrane of the thigh. The extravasation of blood had prevented the circulation from being carried on in the limb; and hence, it mortified. There was a patient in the hospital who had popliteal aneurism. I had fixed the day for tying the femoral artery; but, on the day previous to this, the aneurism burst into the calf of the leg, and the next day the limb was in a state of mortification; so that, instead of tying the artery, I had to amputate the leg. The vessels below were all quite pervious, and the circulation would have gone on very well, but for the pressure produced upon them by the immense extravasation of blood. No doubt, in many cases of traumatic gangrene, this is the principal cause of the mortification.

But traumatic gangrene takes place in another way; and, to illustrate what I mean, I will mention the circumstances of another case which occurred in this hospital some few years since. A poor boy was jumping over a ditch, and fell with considerable force upon his feet. There was a compound fracture of the leg above the ankle. The external wound was trifling, but it was evident that a great shock had been given to the foot and the leg. Four days afterwards, the limb was in a state of mortification as high as the knee, and the mortification seemed to be extending to the thigh. I amputated the thigh as high up as I could, near to the great trochanter. We dissected the limb very carefully afterwards. The large arteries, and also the large veins, were quite pervious. There was, in fact, no injury whatever to the arterial trunks, but the cellular membrane, the muscles, and in short, all the struc-

tures, seemed to be more or less disorganised. There were spots of ecchymosis in the large nerves; the periosteum was universally detached from the fibula, and very nearly so from the tibia. The adhesion of the periosteum to the bone is by means of the small vessels. It is evident, then, that the shock of the accident must have occasioned a great injury to the small vessels connecting the periosteum to the tibia and fibula; and the probability is, that the same kind of injury inflicted on all the capillary vessels of the limb laid the foundation for the mortification. I do not see how the occurrence of mortification, in cases like this, can otherwise be explained.

It has been a sort of dictum of the schools of surgery that you should not amputate while mortification is going on; and certainly, where there is mortification from ossified arteries (as I shall hereafter explain), or where there is mortification from inflammation, you ought to wait for the mortification being stopped, and for the formation of a distinct line of separation, before you proceed to an operation. But it must have been palpable to everybody who took the pains to consider the subject, that this rule would not apply to all cases of mortification. For example, a man has a strangulated hernia; when you open the sac you find the omentum strangulated, a part of it dead, and the mortification still extending. You would not hesitate in a case like this to cut off the dead and dying omentum. If piles were undergoing the process of mortification from being strangulated by the sphincter muscle, you would not hesitate to cut them off. You may conceive many other cases, in which the cause of mortification is local, and to which the general rule which I have just mentioned does not apply. Baron Larrey has the credit of having pointed out more distinctly than had been done before, that, where there is mortification from local injury, you may venture to amputate, though the mortification is still spreading. But I apprehend that the operation must be had recourse to at once, and that the case admits of no delay. If, in consequence of mechanical injury to a limb, mortification has begun, but has not yet produced any severe shock on the

system, there you may amputate. But where the mortification has been going on for some days, so that the system has begun to be influenced by it, the pulse getting weak, perhaps intermitting, and with great prostration of strength; in such a case you must not venture to amputate. Under such circumstances, it is probable that the system is not in a state to bear the additional shock of the operation, to say nothing of the loss of blood. However, I believe that cases enough may be adduced to prove that Baron Larrey's rule, of not waiting to amputate till the mortification has stopped, is applicable in a great number of instances where the disease arises from local injury. It is good in theory; and there is now sufficient experience to enable us to say that it is good in practice also.

Destruction of Parts by Caustics.

Parts may be destroyed by the application of various substances, which exercise a chemical action on the materials of which their organisation is composed. We call these substances caustics, and sometimes escharotics. This is a subject of especial interest in practical surgery; and in considering it I shall not confine myself to the modus operandi of caustics, but I shall extend my observations to the modes of using them, and explain some of the principal occasions on which you may, in the treatment of diseases, have recourse to them with advantage. I have no scruple in doing this, as I am not restricted by the rules of a systematic course of lectures, and need have no object in view, except that of making these discourses as useful to you as possible.

I have said that caustics act chemically, destroying in this manner the organisation of the parts to which they are applied. If there be any exception to this general rule it is in the case of arsenic, in the operation of which there seems to be something peculiar. I make this observation, because it has appeared to me, that, while other caustics have a manifest action on the dead body, it is not so with arsenic. I very much suspect that arsenic acts

merely on the fluids, while ordinary caustics act on the fluids and solids also. However, I offer this to you as a conjecture, and as a matter deserving of further inquiry, and not as a well-established fact. All other caustics which I have made the subject of experiment produced a distinct alteration in the condition of the dead body, though different in appearance from what they produce on the living, in which they operate on the fluids as well as on the solids, and in which the blood moving in the small vessels conveys their influence beyond the surface to which they are actually applied.

A great variety of chemical agents may be employed as caustics. It would be an endless task for me to describe all of those with which I am myself acquainted, and even if I were to do so, a multitude of others would be left unnoticed, of which I have no experience. I shall only speak of those which we are in the common habit of employing, and the right use of which will, if I am not mistaken, enable you to accomplish all that can be accomplished in this way.

There is some difference in the action of different caustics. Some act slowly, others rapidly; some produce much pain, others comparatively little pain. The pain caused by some is very severe for a short time; that caused by others is less severe, but of longer duration. Some destroy a part to a much greater extent than others. The slough made by one kind of caustic will separate much sooner than that made by another. The period occupied by the separation of the slough seems to depend on the quantity of surrounding inflammation. If the inflammation at the margin be considerable, the slough is soon thrown off, whereas, if it be trifling, it may remain attached for a long period. If the caustic be applied merely to granulations, the slough separates much sooner than if it be applied to the skin, or to other parts of original structure.

There is no class of cases in which you will have such frequent occasion to apply caustic as those of exuberant granulations, such as are commonly called proud flesh. In some cases in which there

is little disposition to form new skin, while the granulations rise above the level of the skin in the neighbourhood, it is important that the granulations should be reduced in size. On these occasions we commonly use the nitrate of silver, and it is for the most part sufficient for the purpose. You rub the part with it pretty freely, and the next day the exuberant granulations have disappeared, partly by sloughing and partly by absorption. There are, however, occasions on which you will find a large irregular mass of unhealthy granulations beyond what the nitrate of silver will easily destroy. Such granulations as those to which I now allude are frequently generated over a carious surface of bone, and you will then find the ointment which I am about to mention to be an excellent caustic application. It is a very old prescription, but not the worse on that account. The ointment consists of verdigris, sulphate of copper, and the red oxide of mercury of each two drachms, the bichloride of mercury one drachm, with as much hog's lard as is necessary to blend them together. This may be spread on lint, and one or two applications will be sufficient to destroy a very large mass of fungous granulations.

One mode of making an issue is by means of caustic; and for this purpose we generally employ the caustic potash (potassa fusa), or strong nitric acid. The former may be rubbed on the part until it has penetrated through the skin, and that is enough. If you continue rubbing it afterwards, it penetrates deeper than is necessary, and probably gives rise to considerable bleeding. This caustic continues to spread after you have ceased to apply it; and you must make an allowance for this when you use it, otherwise you will make too large a slough. The caustic potash may be used in other ways; it may be made into a paste with an equal quantity of soap, spread on some linen rag, laid on the part and allowed to remain there for an hour, or longer; or a paste may be composed of two parts of the caustic potash and one part of lime, rubbed down with some alcohol, and applied in the same manner. This last has obtained some celebrity under the name of the 'Caustic of Vienna.' The effects of the nitric acid extend a little after it

has been applied, but not so much as those of the caustic potash. It may be applied by means of lint on the end of a probe dipped in the acid and rubbed for several minutes on the surface. I have seen issues made by the nitrate of silver made into an ointment and laid upon the part. It makes a slough of the skin, and as far as the mere issue is concerned, will do very well; but it is very slow in its action, and causes ten times the pain produced by the other caustics.

When an issue is open you want to keep it open, while perhaps it has a tendency to heal. Then there are occasions on which something is required to prevent sores, or the orifice of a sinus from healing. A man may have a small sinus by the side of the anus. If the orifice heal the matter collects within, and the result is the formation of a fresh abscess. In either of these cases, the best thing that can be done is to touch the margin of the issue, or the surface of the sore, or the orifice of the sinus, now and then with the caustic potash. It makes a slough which takes some time to separate, and the application of it once in ten days or a fortnight will answer the intended purpose. I have often known the nitrate of silver to be used with the same intention, but in fact it promotes cicatrisation, and heals the sore or the sinus, instead of keeping it open.

There is an occasion on which you will not unfrequently have occasion to apply caustic, and where it is very material indeed that it should be done in a careful and scientific manner. I refer to cases in which a person has been bitten by a rabid dog, or a dog supposed to be rabid. On these occasions it is generally better to excise the part thoroughly, and to take out a good deal of the surrounding parts. But it sometimes happens that this cannot be very easily accomplished. A person, for instance, is bitten in the palm of the hand; the dog's tooth penetrates into it, and it would be a very serious thing to cut out tendons, nerves, and everything else down to the metatarsal bones; or it may be that after the incision you find on examination that the tooth has penetrated farther than you had supposed, and where you cannot very easily follow

it with the knife. On these and similar occasions, you can do nothing better than trust to the application of caustics. Mr. Youatt, the veterinary surgeon, who has had great dealings with rabid dogs, tells me that when he has been bitten he has always applied the nitrate of silver, and he is alive and well now; so that in his case, this kind of caustic has done all that has been required. But then he applies it at the very instant when he is bitten; whereas very few of your patients have the nitrate of silver in their pocket, or could apply it if they had. The best caustic, I apprehend, for you to use on these occasions, is the caustic potash; and for this reason: that it dissolves the parts with which it comes in contact, and that afterwards the dissolved caustic penetrates still further beyond the part to which it has been actually applied. If the tooth penetrate to the cellular membrane, by the time that you are consulted some of the saliva may have reached the cells beyond, and if you apply the nitrate of silver, or the nitric acid, these will coagulate the fluids and harden the solids, while the caustic potash becoming diffused, will follow the course of the saliva. A convenient way of applying the caustic on these and on some other occasions is this: melt it in a silver or platina spoon, and, when melted, dip into it the blunt end of a probe. It will come out with a varnish of the caustic upon it; dip it in again until the button of caustic has attained a sufficient size. By means of a probe thus armed you may carry the caustic even into a very narrow wound, so that you are sure it will penetrate wherever the dog's tooth has penetrated; after which, from the particular nature of the caustic (as I have just explained), you may be certain that it will penetrate still further, and as far as the poison can have reached.

Caustics may often be used very advantageously for the purpose of destroying diseased lymphatic glands. A man has chronic inflammation and enlargement of the glands in the groin, forming a considerable tumour. The skin over them ulcerates, forming, at last, a large ill-conditioned ulcer, which will not heal. The reason of this is plain enough. No ulcer will heal unless it has a

healthy basis, and here the basis is a mass of diseased glands. These diseased glands may take a long time to recover themselves; some months or even a year; and as there are plenty of glands to spare, there is no harm in destroying those which are diseased. You may effect this by the caustic potash, but not very well. You want scome kind of caustic which will lie in the substance of the diseased glands, and destroy their internal structure, as well as their outer surface. The form of caustic I am going to mention was used by the late Mr. Pearson, from whom I had the prescription. It consists of one ounce of crumb of bread, two drachms of the bichloride of mercury, and one drachm of red oxide of lead. These are to be mixed together, kneaded with the fingers, and formed into a sort of paste. The paste should be rolled into little conical troches, and these, if left to dry, become hard, like what are called bread seals. These troches may be stuck into the enlarged gland like pins into a pin-cushion. In the course of a little time they begin to act, as the patient knows from the pain produced. The pain lasts for some hours, and if a sufficient number of the troches be employed, the whole of the gland is at once destroyed. If any portion remains, it is easy to destroy it by repeating the process. I do not know whether the red-lead answers any useful purpose; I suppose not; but I found it in the original prescription; and on all occasions where I find a particular prescription to do just what is wanted I am a little unwilling to alter it.

Caustic may be applied to various morbid growths; and I am inclined, on the whole, when these can be easily destroyed by caustics, to use them in preference to the knife; and for these reasons: 1st, the former are, on the whole, much less formidable to the patient; 2nd, if I am not very much mistaken, there is less chance of any ill consequences from the application of caustic than from even a small operation with a knife. For example, you very seldom find an attack of erysipelas follow the use of caustic; certainly much less frequently than after the use of the knife. Again, the slightest wound in certain constitutions will be

followed by that diffuse inflammation of the cellular membrane terminating in gangrene, which I noticed in a former lecture. But I do not recollect that I ever saw the same thing to happen after the use of caustic. The cases, however, to which caustics are applicable, are only those in which the morbid growth is of small size, and placed quite superficially. Undoubtedly, it would cause too much suffering to the patient, and, in consequence, too great a shock to the constitution, if a morbid growth of very large size were to be destroyed in this manner.

There is a very common kind of morbid growth in the form of warts and condylomata, which occur in women about the pudenda, and in men on the glans penis and about the anus. These are very easily destroyed by caustic. The nitrate of silver will destroy warts on the glans penis very well, if they are of limited extent, but not when they are collected in large masses. In such cases as these strong nitric acid may be employed. Rub the warts with it, and repeat the application, from time to time, till the whole are destroyed. The following application will answer the purpose in cases where the warts are not very extensive; a drachm of hydrochloric acid, added to three drachms of sesqui-chloride tincture of iron. This destroys the warts, but not very rapidly. The application must be repeated every day for some time, until they shrivel, decay, and drop off; and the patient may do this for himself. There is a very common escharotic, and a very useful one, for warts on the glans penis or pudenda, where they do not exist to a great extent, namely, equal parts of powdered savine and verdigris. This, being sprinkled on the warts, destroys them, partly by making them slough, and partly by promoting their absorption. Another excellent caustic, on this and some other occasions, is this: take half an ounce of strong nitric acid; add to it a scruple or more of the white oxide of arsenic. It makes a beautiful blue solution, consisting of the nitrate of arsenic, dissolved in nitric acid. This may be applied to the warts by means of a probe armed with lint; and it has a double operation. The nitric acid acts immediately; and when it has ceased acting, the slough contains a

certain quantity of arsenic, which continues to operate afterwards.

On this occasion, as on many others on which you use nitric acid, without care, you will be in danger of burning the neighbouring textures. A woman who has warts on the pudenda wishes to have them destroyed, but she has no desire that the skin in the neighbourhood should be burned. This, however, will happen, unless you use means to prevent it. If you use nitric acid you should have at hand a solution of the bicarbonate of potash, by applying which you may neutralise the acid as it flows beyond the surface on which it is intended to act and stop its operation. I may observe, here, once for all, that there are many occasions when it is necessary to use similar precautions. Indeed, almost always, when you use a caustic, it is prudent to have some counter-agent at hand to stop its action if it reaches a sound part. Acids may be neutralised by alkalies; caustic potash may be neutralised by vinegar, or by a solution of the diacetate of lead. If you are afraid of nitrate of silver burning the neighbouring parts, its action may be neutralised by common olive oil. A solution of the bicarbonate of potash will decompose chloride of zinc; and so with other caustics.

Caustics may be used, with great advantage, in many cases for destroying the congenital vascular tumours which we see so frequently in children; nævi as they are sometimes termed.

There are small vascular spots, not exactly congenital, though they occur in early life, which present themselves on the face of children, and which, not unfrequently, are objects of some anxiety, especially in the higher classes of society, as they form rather ugly red specks on the face. On examining one of them with a lens, you see one large vessel in the centre, and small branches radiating from it. These spots, in most instances, if let alone, will, in the course of time, disappear spontaneously. If, however, it be thought desirable not to wait for the natural cure, you may destroy them in the following manner. If the principal vessel be near the surface, touch it, through the cuticle, for an instant, with strong nitric acid, and it will contract, and become obliterated.

This is best done by means of a pointed piece of glass, which they sell as a sort of toy, under the name of a glass pen. It is, in truth, as bad a pen as possible, but it answers this purpose, and some other purposes in surgery, exceedingly well. If the acid flow over the cheek, you may neutralise it by applying a solution of the bicarbonate of potash. But this method is not sufficient for the destruction of these vascular spots in every instance; and there is another and a still more certain, method of proceeding. Puncture the principal vessel from which the others radiate with a lancet, and then introduce into the puncture, merely for a single instant, a piece of caustic potash, scraped into the form of a pencil, with a very fine point. Touch it, I say, for a moment only; this will be quite sufficient. But even after so slight an application, you will find that the caustic has also burned the margin of the skin, and, unless you adopt other measures, a trifling mark will be left. All that is required is the application of a very little vinegar, by means of a camel's hair brush.

There are some congenital nævi which are altogether cutaneous. There is a very intricate plexus of little vessels in the skin, filled with scarlet blood, which, being elevated above the surface of the surrounding skin, assumes an appearance which may be compared to that of a raspberry. If a nævus of this kind be of large size it must be removed by the knife or by a ligature, but if it be small you may destroy it very well with caustic. You should not employ the caustic potash, which would produce bleeding, but rather have recourse to nitric acid, which destroys the nævus sufficiently, while at the same time it coagulates the blood in the small vessels, rendering the nævus more solid than it was before. With a piece of stick or a probe armed with lint and dipped in the acid, paint the surface of the nævus, taking care that you include the whole, without burning the neighbouring parts. This makes a slough of the surface of the nævus, and at the same time causes the blood to coagulate in the small vessels below, and thus renders them impervious. But, let me repeat that this method is applicable only where the nævi are of small size.

There are subcutaneous nævi formed by vascular tumours in the texture under the skin, and not in the skin itself. These put on a different appearance from the cutaneous nævi before mentioned. The blood here is seen, not of a scarlet, but of a purple colour, because the skin lies over it. These may be destroyed by caustic when they are of small size; and even when they are of large size, if it be a great object to avoid the scar which must exist after the removal of them by the knife or by ligature. These vascular nævi have sometimes been cured by vaccination. Half a dozen punctures have been made with a lancet armed with vaccine lymph. The pustules being crowded together in the nævus, a good deal of inflammation has ensued, with some degree of sloughing, and between the two the nævus has been cured. But you cannot depend on this method; at least so I am informed by those who have practised it, for I have not tried it much myself; but you may, acting on the same principle, very easily cure such a nævus by caustic. For this purpose I have a very narrow knife, perhaps about the eighth of an inch in width; I introduce it into the middle of the nævus, and move it in different directions, so as to cut to pieces, as it were, its vascular structure. I then have a probe armed by dipping the blunt end of it into nitrate of silver, melted in a platina or silver spoon. The probe thus armed is to be introduced into the puncture made by the narrow lancet, and moved about, so that wherever the lancet has divided the blood-vessels the caustic may penetrate also. It causes inflammation and sloughing, at the same time obliterating the vessels beyond the margin of the slough. When the slough is separated there is a slight discharge of pus for a few days, and if the tumour be of small size you will find that it is cured; but if it be large the application must be repeated. I have used this on several occasions with great advantage, especially when the tumour has been on the face, where it was a great object not to destroy the skin. If you remove one of these tumours either by the knife or by ligature, you must in either case leave a large cicatrix. But by applying the caustic in the way which I have mentioned you save the skin. I

was requested to see a little child that had one of these subcutaneous nævi at the tip of the nose, giving it a very ugly appearance. By far the greater part of the alæ of the nose was involved in the tumour, and to have cut it out would have disfigured the child for life. I treated it according to the method which I have just explained. Several operations were required, but they succeeded perfectly; the child is quite cured of the nævus, and I will not say that you see no mark at the end of the nose, but there is so little, that unless your attention were called to it, you would not know that anything had happened. I have destroyed an extensive subcutaneous nævus occupying a very large portion of the face, in the same manner, there being very little or no scar afterwards.

There is another class of cases which may be very conveniently treated with caustic, and in general much better than with the knife—I mean those tumours which I have been in the habit of calling *half-malignant*, and which occur on the face chiefly of elderly people. A man has a soft tubercle upon the face covered by a smooth skin. He may call it a wart but it is quite a different thing. On cutting into it you find it to consist of a brown solid substance not very highly organised. A tumour of this kind may remain on the face unaltered for years, and then, when the patient gets old, it may begin to ulcerate. The ulcer spreads, slowly but constantly, and if it be left alone it may destroy the whole of the cheek, the bones of the face and ultimately the patient's life; but it may take some years to run this course. So far these tumours in the face, and these ulcers, are to be considered as malignant. Nevertheless they are not like fungus hæmatodes or cancer; and for this reason, that the disease is entirely local. It does not affect the lymphatic glands, nor do similar tumours appear in other parts of the body. I have generally been in the habit of destroying these tumours with caustic, and when they are of small size, I prefer it to the knife, for the reasons I have formerly mentioned. If a patient applies to you with one of these tumours as large as a pea or a horse-bean, not ulcerated, but beginning to increase in size, you may proceed in the following manner: first, make a

many of Miss Plunkett's patients, and that after the application of her caustics many of them died, from what seemed to be inflammation of the bowels. It is indeed notorious that the topical application of arsenic to a great extent is very likely to produce the same poisonous effects as arise from an absorption of it from the alimentary canal. The chloride of zinc acts merely locally; nothing deleterious is absorbed into the constitution, and its use is not attended with any constitutional disturbance, nor productive of the smallest danger. I generally use the chloride of zinc by mixing it with an equal quantity of flour. It deliquesces from the moisture of the atmosphere, or you may add a little water to make it into a paste, which is to be spread on lint. If you want a deep slough, spread the paste thick; if a superficial one, spread it as thin as you please. The depth of the slough depends on the thickness of the paste, and the thicker it is the longer the action of it continues. The application of the chloride gives the patient a good deal of pain, which you must make him endure as well as you can, by the administration of opium. Some patients suffer much more than others, some will not require any opium at all, others will require it in large doses. When the action of the caustic has ceased there is of course an end to the pain, and the slough comes away in a few days. If the ulcerated surface be of large size, and the disease of much depth, a second application may be required. When the disease is situated over a bone, I generally like to procure a thin exfoliation of the latter, and the caustic accomplishes this very well, acting on the bone, but not to any great depth. The exfoliation takes place in a few weeks; and when the thin layer of dead bone has come away, healthy granulations are seen beneath. Sometimes, after having destroyed a greater part of an ulcerated tumour with chloride of zinc, a small portion of it may be left here and there, to which you may apply the caustic potash or solution of arsenic in nitric acid. This solution of arsenic, or any other preparation of arsenic, may be applied to a small surface very safely. Observe, that what I object to is merely its application to a very large surface. I am told that the nitrate of zinc

may be used as a caustic also, but I have no actual experience of it.

Ulcerated tumours, similar to those which occur on the face, are sometimes met with on the scalp; and these, too, may be destroyed with caustic. You must, however, apply it in these cases with great caution; and for this reason: if you destroy at once a large portion of the pericranium, it is not improbable that a separation of the dura mater from the inside of the bone will be the consequence. A case of this kind, which I saw long ago, made a strong impression on my mind. A surgeon applied the caustic potash to the scalp, with a view to make an issue in a man's head, who was labouring under a head-ache, and nothing else. When the slough had separated a piece of the occiput was exposed, as large as a half-a-crown, or larger. The patient was soon seized with a set of strange symptoms, and died. It was found that the dura mater had become detached from the inside of the bone, just opposite the part where the pericranium had been destroyed on the outside; and it was clear that the sloughing of the dura mater was the cause of the man's death. I mention this case to show that you must be cautious in the use of caustic when you apply it to the scalp; but you may apply it there, nevertheless, if you proceed in a prudent manner. I had lately a very successful case of one of these half-malignant tumours of the scalp, which was much ulcerated, and had been going on for some years. I applied caustic to the different parts in succession, not making a fresh application until the slough made by the former one had come away. By proceeding in this manner the bone was not killed, except a very thin layer on the surface, and the patient was cured.

You may, with proper precaution, apply caustics to parts situated internally, even to the inside of the mouth, and to the inside of the female urethra. In that disease which we call epulis, a red tumour, that looks like the gum, and which becomes connected with it (though I believe that it really has its origin in one of the alveoli), you may use them with great advantage. It is in vain to destroy the outer part of such a tumour, that is, the

part connected with the gum, unless you also destroy the inner part, where it originates in the alveolar process, also; and, from the surgeon not being aware of this circumstance, I have, in several instances, known repeated operations with the knife, as well as the application of the hot iron and caustics, fail. The caustic which I find in general to be most convenient in these particular cases is the potassa fusa. You must fix it at a right angle to the end of a pair of dressing forceps, and secure it well by tying thread round it. The caustic should be scraped small enough to enter the alveolus, the tooth having been previously extracted. Having thus destroyed the disease where it originated, you may afterwards apply the caustic to the other portion which is connected with the gum. But you will say, that it will burn the tongue or the cheek; and so it will, if you are not careful. You must let your assistant hold open the cheek; and while you apply the caustic, he must have at hand a brush, dipped in diluted vinegar, which he is to apply wherever the caustic spreads further than you intend it. I do not recommend this kind of treatment in the case of a large epulis, in which it will probably be necessary to take out a portion of the jaw; but it is perfectly applicable to many cases in the early stage of the disease. With a somewhat similar precaution, you may apply caustic to destroy the vascular excrescence, which is met with not unfrequently in the female urethra; a disease first described by Sir Charles Clarke, and of which you will find some account, also, in my lectures on diseases of the urinary organs. For these cases you should be provided with a silver tube or shield, closed at one end, and open on one side. Introduce this into the urethra, so that the vascular fungus may project into the open side of the tube, and there apply the caustic. Here also you must trust to your assistant dabbing the neighbouring parts with some liquid which will act as an antidote to the caustic; a solution of bicarbonate of potash, if you use the nitric acid, or vinegar, if you use the caustic potash. In general, in these cases, it is better, before you use the caustic, to remove as much of the excrescence as you can with a pair of scissors.

I have spoken of the application of caustics in some cases of what I have called half-malignant disease; but, occasionally, they may be employed in cases of true malignant disease, such as scirrhus and fungus hæmatodes. If one of these tumours be of large size, it is better to use the knife; in fact, you cannot remove it otherwise. It is in the case of smaller tumours that you may use caustic with advantage. I will give you an example. A lady consulted me concerning a scirrhous tumour of the breast. The tumour was very small, but there was a scirrhous gland in the axilla; and where there is one scirrhous gland, you may be nearly certain that there are several others, though you cannot perceive them through the skin. I did not, therefore, recommend an operation. She came to London a year afterwards; the tumour having ulcerated, and there being severe, and, indeed, almost intolerable, pain. I applied to the ulcerated surface of the tumour a paste of flour with the chloride of zinc. The tumour was apparently destroyed, and the sore cicatrised. She continued well for a considerable time. Another tumour then showed itself, in the neighbourhood of the cicatrix, which was also attended with excessive pain, and that was destroyed in the same manner; as was a third tumour, that appeared afterwards. By this treatment her life was prolonged a full year and a half; and, during this time, she was in a state, not of misery, but of comparative comfort; being, generally, free from suffering. She died, at last, of an effusion of fluid into the pleura.

A lady, whom I attended last winter, had a fungous growth over the head of the tibia. It had all the appearance of malignant disease, was of considerable size, and was partly ulcerated. There had been a tumour there before, and her country surgeon had removed it; but the disease had returned. I removed it a second time, with the knife; and, as far as I could see, the operation included, not only the diseased structure, but the parts beyond, to a considerable extent. The wound appeared healthy, and went on healing favourably. Just, however, as it was healed, and when the patient had fixed the day for leaving my care, there appeared,

on the margin of the cicatrix, where there had been nothing before, a tubercle, which seemed to be precisely similar to what the other tumour had been in its origin. I destroyed this tubercle with caustic, and the sore, thus made, healed. A second and a third appeared, which were, also, destroyed in the same manner. No others have since shown themselves; and I cannot but entertain some hopes that the disease is really eradicated.*

I must not recommend you to use the chloride of zinc, without giving you this caution respecting it: never apply it, except where there is an ulcerated surface. If you apply it to the skin, you must first put on a blister, to remove the cutis, as, otherwise, it will scarcely act at all. But, even when the cuticle has been removed, it will not act for the first twenty-four hours; and it will then begin to produce intolerable pain, which will continue for four or five days. When the tumour is covered with skin, you must use the caustic potash or nitric acid first; and when the superficial slough has come away, if the further use of caustic is indicated, the chloride of zinc may be had recourse to.

I think it worth while to point out another case, in addition to those alluded to in the last lecture, in which the destruction of parts by caustic may be resorted to with great advantage. I refer to phagedenic and sloughing sores, whether they be those that occur upon the organs of generation in persons who have been exposed to syphilitic infection, or whether they be those that appear on other parts of the body, and to which the term 'hospital gangrene' is usually applied. The destruction of the parts by a powerful escharotic frequently seems to destroy the poison on which the phagedena and sloughing depends. The best caustic for this purpose is the concentrated nitric acid, applied so as to make a slough of the diseased surface, and extending to the parts just beyond it. The destruction of them to a greater depth than this is unnecessary. This method of treatment was recommended

* Some years have now elapsed, and there has been no recurrence of the disease.

some years ago by Mr Welbank, who wrote a very interesting paper on the subject.

I have taken this opportunity of speaking of some of the principal cases in surgery to which the destruction of parts by caustic is applicable. But you will find a great number of others in practice in which you may employ it with advantage. I need not, however, occupy your time further with this part of our inquiries. The observations which I have already offered will be easily applied to other cases; and will, I trust, be found sufficient to initiate you in this department of surgery.

Destruction of Parts by Heat. The Actual Cautery.

The organisation of the living body may be destroyed by the application of intense heat. A moderate degree of heat does not at once destroy vitality; it produces a peculiar kind of inflammation with vesication of the skin; but a great degree of heat destroys at once the vitality of the part to which it is applied. Of course the action of heat is altogether chemical. No part will live if its organisation be destroyed; and heat destroys the organisation. There is one thing worthy of notice respecting the slough made by a hot iron; it is separated sooner than the slough made by caustic; that is, the two sloughs being of the same extent, that which is made by a hot iron is separated at an earlier period than that made by caustic. The reason of this is sufficiently evident. If you look at the injured part there is a much greater degree of inflammation round the slough made by the former, than there is round that made by the latter.

The destruction of a part by the application of heat to a small extent, is attended with no constitutional disturbance; but if it be to a great extent the constitution is affected in proportion to the quantity of parts destroyed. This, however, is remarkable: that where, on the surface of the body, there is an absolute destruction of the skin by intense heat, the constitution often suffers, in the first instance, much less than if a slighter degree of heat had been

applied to the same extent of surface. You will have frequent opportunities of verifying this observation if you watch the comparative effects of burns and scalds in the cases admitted into the hospital. I have been surprised sometimes to find, where a great deal of skin has been completely destroyed, how little the constitution has resented the injury immediately after it has been inflicted. But it resents it enough afterwards; and when the period arrives at which the slough should be thrown off, then the general system suffers. I remember a lady who had both her arms burned, so that nearly the whole skin of each upper extremity was completely dead; yet her constitution in the first instance seemed almost unconscious of the shock; as soon, however, as the line of separation at the margin of the dead skin had begun to show itself, a change took place, and she died in a day or two.

The actual cautery may be used for surgical purposes on the same principle as caustics; and there is one occasion on which the former will certainly do what the latter will not effectually accomplish; I allude to hæmorrhage. In some cases of hæmorrhage from a great number of small vessels, or from large vessels which cannot be secured on account of their being deeply seated, the actual cautery is very serviceable. Except under these circumstances, I have not much had recourse to it. It does nothing which caustics would not do as well or better, and it is much more alarming and frightful, both to the patient and to bystanders. It was the habit of surgeons here fifty or sixty years ago, to use the actual cautery to a great extent; and it appears to be one of the many proofs of the advancement of English surgery that we have got rid of what Sir Astley Cooper used to call 'a rude piece of farriery.'

Mortification from Animal Poisons.

I mentioned in a former lecture that I had seen a man who died of extensive sloughing of the cellular membrane, after the sting of a bee. I stated that I attributed this chiefly to his being of a bad constitution, though perhaps something might be attributed to the

influence of the animal poison. My reason for making the latter observation was this: that there are certain other animal poisons which have the effect of producing mortification, especially of the cellular membrane. There is a work of the Abbé Fontana in which he describes a great number of experiments on the smaller animals, made with the poison of the viper, and the principal local effect that he observed was gangrene of the bitten limb. When I was first assistant-surgeon, a man was brought into this hospital under the following circumstances. A rattlesnake was exhibited in Piccadilly, and this poor fellow went to see it. He was a carpenter, and having dropped his rule into the rattlesnake's cage, he introduced his hand to take it out, and the snake bit him. He was immediately brought to the hospital in a state approaching to that of syncope, with violent pain extending up the arm. The next day the whole arm was swollen, and the skin looked purple; there were vesications upon it as if sloughing were going on in the subcutaneous cellular membrane. The man lingered here for nearly three weeks, and then died. At the time of his death there was extensive mortification, not only of the skin of the forearm, but also of the whole of the cellular membrane, from the bitten finger up to the shoulder. From the appearance in the beginning there could be no doubt that the sloughing process of the cellular membrane had begun immediately after the injury was received. The skin itself seemed to have mortified only because it lay over the dead cellular membrane, and what is curious, the muscles underneath were not at all affected. The poison seems to act (as far as its local operation is concerned) especially on the cellular membrane. This was proved not only by this particular tissue sloughing so extensively, but also by this circumstance, that within an hour after the bite, extravasations of blood (ecchymoses) might be traced in the cellular membrane as high as the shoulder, and from thence downwards, on the side of the chest, as low as the false ribs, presenting altogether a very singular appearance. The poison, indeed, seemed to operate on the cellular membrane neither in the direction of the nerves, nor in that of the absorbents, nor

in that of the blood-vessels. In fact, it is difficult to explain the local effects produced by this virulent poison from the anatomical structure of the parts or on any known physiological principles. I am in possession of the notes of an experiment made by the late Mr. Ewbank (who died several years ago, having been for some time my colleague in this hospital), with this same rattlesnake. A rabbit bitten in the shoulder became affected by the poison in a few minutes, and died at the end of three quarters of an hour. Even in this short space of time the cellular membrane, to a great extent, was in a state of slough, although the skin and the muscles were not affected. There are several other animal poisons that operate in the same manner.

I have only one practical observation to make, in these cases, namely, that you may prevent the extension of the mischief produced by the animal poison, by the application of a ligature round the limb, above the bitten part. It seems to stop the influence of the poison upon the cellular membrane, and at the same time to prevent it from entering into the circulation, and affecting the general system; and we must bear in mind, that, in these cases, besides its local operation, the poison has a powerful influence on the constitution. The constitutional symptoms, however, are not to our present purpose, and therefore I shall not describe them.

Mortification from Exposure to Cold.

As parts may be killed by excessive heat, so they may be killed by excessive cold. You might suppose that cold would produce the death of a part in the following manner: that it would freeze it; and that the fluids, being frozen, and to a certain extent expanded in the act of freezing, the organisation of the capillary vessels would be destroyed, and death of the part ensue; in the same manner as in plants and trees which are killed by a severe frost. Two or three years ago, when there was some very mild weather, like that of spring, about Christmas, in many places the sap began to circulate in the evergreen trees. But this premature spring was followed by some days of most intense cold. The sap

was suddenly frozen in the alburnum; and, as it froze, it expanded and burst the vessels and killed the trees, by destroying their organisation. I said that you might suppose, at first, that death from cold is produced in a similar way in the animal body. I cannot say that such never is the case, but I do not find that that is the way in which it usually happens. When a part is frost-bitten, it is not, in general, killed at once; but, after being exposed to a warmer temperature, it inflames, and the inflammation immediately terminates in gangrene. I imagine that the influence of cold upon the animal body is scarcely ever so instantaneous as at once to freeze the fluid in the vessels; there is almost always time for them to contract and become emptied of their blood before the parts are frozen. You may see this in your own fingers; when they have been exposed, on a cold day, they become quite shrunk and pale, as if there were no blood in them, and may remain in this state for a very long time. If, in a case of frost-bite, you go to the fire, to warm the affected part, there is a sudden reaction; inflammation is set up, and mortification follows. In this country we have very little experience of these cases. Every now and then, indeed, a patient is brought into the hospital, who has lost a part of his foot, perhaps two or three toes, in this manner, but not until some time after the mischief was done; and we therefore, do not see the process by which the death of the part has been produced. There are, however, abundant accounts of death from frost-bite, furnished by persons who have been in climates colder than ours. I may refer, especially, to a work by M. Beaupré, a French surgeon, who followed the Emperor Napoleon in the Russian campaign. By his account it would appear that parts may be under the influence of cold for a great length of time, so as to be completely deprived of sensibility, and yet with prudent management may recover perfectly. He states that he has frequently had his feet benumbed while riding on horseback, so that for a long time they had been devoid of sensation, and that he has got off his horse without knowing whether they touched the ground or not; but that by rubbing them with

snow, and thus very gradually restoring them to a proper temperature, the evil consequences of frost-bite were prevented.

Mortification from sudden Loss of Blood.

As the circulation of the blood is necessary for the maintenance of life, so whatever for a considerable time prevents a part of the body from being supplied with blood, will produce mortification. A very copious blood-letting, for instance, will under certain circumstances give rise to it. I will mention a remarkable example which fell under my observation some years ago in a case which I attended with the late Dr. Babington. The patient, a medical officer in the East India Company's service, had gone out to dinner and drunk an immense quantity of wine, so that he got exceedingly tipsy. This was in the city. He staggered up Holborn as well as he could, and found his way into a chemist's shop. Here he was mad enough to ask the person who stood behind the counter to bleed him; and whether this person was tipsy or not also I do not know; but, however that might have been, he certainly did bleed him; and not only that, but the two blockheads agreed that he could not be bled too freely; and the drunken man lost, I believe, not less than three pints of blood. He then became exceedingly ill; was carried home in a coach; and the next day both his feet were mortified from the extremities of the toes to the instep. We gave him wine, and nourishment, and he recovered; the sloughs separating, the dead bones coming away, and the stumps of the feet healing.

Mortification from Inflammation of Arteries.

Anything which obstructs the passage of blood completely through the arteries of a limb will, of course, produce mortification. A single ligature, placed on an artery, does not do so, because it obstructs the main trunk only at one point, and there are anastomosing vessels communicating with the artery above and below the ligature, which are sufficient to carry on the

circulation. But, suppose that, instead of one ligature, you were to put on half-a-dozen, at different distances from each other, in the space of six or seven inches of the artery, you would not only render the arterial trunk, but the anastomosing branches also, incapable of carrying on the circulation; and this would produce gangrene. I imagine that such a thing never was done by a surgeon upon the human subject, but something corresponding to it may happen from disease. As long ago as when I was house-surgeon in this hospital, I went to see a poor man at Brompton, under the following circumstances. On a very hot summer's day, in August, he was walking in the fields, when he felt a sense of pricking, numbness, and weight, as he described it, in both lower extremities. It was with great difficulty that he crawled home. In one of the lower extremities these sensations subsided, but not so in the other. On the following day, the whole of the limb, from the toes to the middle of the thigh, was in a state of mortification. The mortification never extended afterwards; no vesications formed on the foot; it was not swollen, and no part became putrid, except just a little in the middle of the thigh, where there was a great mass of soft parts. The limb dried, the skin assuming a brownish colour, being, at the same time, hard and semi-transparent, so that the white tendons could be seen shining through it. It was, in fact, what has been called a case of dry gangrene. The poor fellow went on very well for four or five weeks, without any bad symptoms, during which time the separation of the dead parts in the thigh had made considerable progress. But it was more than nature could accomplish to complete the work. His powers, at last, began to fail, and he died at the end of six weeks from the commencement of the attack. I examined the body, and found marks of inflammation everywhere about the principal artery and vein of the limb. From the bifurcation of the iliac trunk down to the middle of the thigh, the artery was obliterated, being completely filled with coagulated lymph, evidently effused from inflammation, closely adhering to the inner surface, but with some admixture of red coagulum. The vein also was filled with lymph

and obliterated in the same manner as the artery. There had been inflammation of the sheath of the vessels, in consequence of which the artery and the vein adhered closely to each other, and to the surrounding parts, so that the dissection was somewhat difficult. The nature of the case seems to be plain enough. There had been inflammation of the artery and the vein, and the obliteration of the artery was to so great an extent as to cut off the supply of blood, not only through the trunk but through the anastomosing branches. Some years ago I was called, with Sir Charles Clarke and Mr. Bryant of the Edgeware Road, to see a case apparently similar, which terminated more fortunately. A lady, without any evident reason, was seized, all at once, with pain in one groin, and down the anterior and inner part of the thigh, with great tenderness in the course of the femoral artery. When I first saw her, which was not till some days afterwards, the whole leg below the middle was in a state of mortification. There was no œdematous swelling of the foot, and no vesication. She had still pain in the course of the femoral artery, which was aggravated by pressure; and the pulse could not be felt in any part of the limb. Considering the resemblance of this case to the one which I have just mentioned, I could entertain no doubt that the disease was the same, and that the mortification of the leg was the consequence of arterial inflammation. After some time the soft parts began to separate, until, at last, the lower part of the leg and the foot remained attached to the rest of the limb, merely by the tibia and fibula. I sawed through these bones, after which the parts gradually healed, forming a very fair stump. Perhaps you will ask why I proceeded in this manner, instead of amputating the limb at once. The fact is, that I remembered a case, published in 'Saviard's Observations on Surgery,' (Saviard was a celebrated French surgeon in the early part of the eighteenth century) which was very similar to this which I have just mentioned, and in which he amputated the thigh. In performing the operation, he was surprised to find that no blood flowed from the stump, in consequence of the vessels being obliterated. The parts divided in the

operation had not a sufficient supply of blood for the healing process. The stump mortified, as the leg had done before, and the patient died. It appeared to me, after the evidence afforded by this case, that it was desirable to avoid an operation if possible. At the same time I ought to mention, that in the second volume of the 'Medical Observations and Inquiries,' there is an account of another case of the same kind, in which amputation was successfully performed, the stump healing favourably. One of the circumstances most deserving of notice in these cases is, that the limb mortifies to a certain extent, and that then the mortification stops. This, however, is easily explained. We know that the obliteration of an artery must prevent the supply of blood to certain parts, but no further. Another peculiarity is, that the parts become dry, hard, horny; which condition of them has given rise to the name of dry gangrene. This is easily explained also. If mortification be the result of inflammation or of venous obstruction, there is always an effusion of serum, before the parts completely die, in the form of vesication of the skin and œdema of the cellular membrane; and then, when the parts die, being infiltrated with serum, they readily become putrid. But here the supply of blood is cut off; the blood is prevented from entering the limb so that there can be neither vesication on the surface nor effusion of serum into the cellular membrane; and the dead parts dry readily from the absence of moisture. M. Dupuytren has described the gangrene that occurs in old age as the result of arterial inflammation, but I am quite satisfied that he is mistaken on this point. Gangrene from arterial inflammation is a comparatively rare disease, and may occur at any period of life; whereas the gangrene of old age arises, as repeated dissections have enabled me to determine, entirely from other causes.

Senile Gangrene.

Persons advanced in life are liable to mortification of the toes and feet; generally beginning in the former and extending to the latter. By persons advanced in life I mean those who bear

upon them the marks of old age, which may, however, occur at various periods of human existence. One of the worst cases of mortification of the toes which I ever witnessed, connected with what might truly be considered old age, occurred in a man of six-and-thirty, worn out by the operation of bad habits upon an originally bad constitution.

The question here arises in limine, Why is it that elderly persons are liable to this disease? The answer is furnished by morbid anatomy. I have examined the bodies of a great many old persons who have died with mortification of the toes, and I have always found some morbid condition of the arteries of the affected limb. In the very great majority of cases there is extensive ossification of the arteries of the thigh and leg; in many cases they are not only ossified, but some of them are contracted and obliterated. Such, in some instances, is the condition of the femoral artery in the middle of the thigh, even for some inches of its course. In other cases, one or more of the arteries of the leg are obliterated, while the femoral artery is still pervious. In one case, of which I have preserved notes, there was no ossification of the arteries anywhere, but the femoral artery was converted into a gristly cord, so as to be quite impervious from the origin of the profunda to the point at which it perforates the tendon of the great head of the triceps adductor muscle. In none of these cases, in which the arteries were contracted and impervious, were there any such appearances as would have indicated that the contraction had been the result of previous inflammation; and it appeared to me that the change which had taken place in their condition was best to be explained by supposing it to be the result of a contractile process, analogous to that which produces a permanent stricture of the urethra or œsophagus.

It has been said that mortification of the toes in old persons is often the result of disease in the heart itself. This does not, however, exactly correspond with the results of my own experience. It is true, that I have known persons who had disease in the heart to die of mortification of the toes, but then there was

always enough in the condition of the arteries of the limb to account for the mortification, independently of the other disease. Thus, in one case in which there was mortification of the right foot, the muscular structure of the heart was soft, thin, flaccid, and easily torn, and one coronary artery was impervious; but the right iliac artery, for the extent of three inches, was impervious also, in consequence of it being completely choked by a mass of firmly coagulated blood. In another case, in which there had been mortification of the right foot, the muscular structure of the heart was pale and flaccid; one coronary artery was contracted and impervious; the cavities were dilated, and a mass of dense coagulum, resembling that found in the sac of an aneurism, occupied the appendix of the left auricle; but there was a similar coagulum obstructing the popliteal artery and vein of the right side, and extending some way down the branches of those vessels in the leg.

You are not, however, to suppose that mortification of the toes is a necessary consequence of ossification or obliteration of the arteries, and that it occurs in all such cases. I have no doubt that many persons have the arteries thus altered in structure for many years, although mortification never supervenes. I have already explained to you, that, in some instances, the arteries are ossified, and at the same time either contracted or obliterated; that in others they are obliterated without being ossified; and again, that in others they are ossified without being obliterated, even retaining their natural diameter. It is evident that the quantity of blood admitted into the limb must be different under these different circumstances, and that the liability to mortification must vary accordingly. But further than this; even where the arteries are rendered narrower, or actually obliterated, it seems that in general something more must happen to bring on mortification; and you will almost invariably find that the immediate cause is an attack of inflammation. Perhaps the following is not an unreasonable explanation of the phenomena which occur. The arteries are ossified, or they are partially obliterated, but still a

sufficient quantity of blood for ordinary purposes enters the limb. By-and-by, from some cause or another, the foot becomes inflamed. I observed to you, in a former lecture, that during inflammation an increased supply of arterial blood seems to be required, and that the arterial trunks leading to the inflamed part become dilated, so as to allow this increased quantity of blood to enter; but if the arteries are ossified they lose the power of dilatation; the greater supply of blood required in consequence of the inflammation is withheld, and so the part perishes.

You might suppose, à priori, that persons in the lower condition of life, who live by their daily labour, and suffer bodily privations would be more liable to mortification of the toes than other persons; but such is not the case; at least it has fallen to my lot to see comparatively few examples of this disease in the hospital, whereas, in private practice I have met with a great number; so that for one case under my care in the former I have had at least three or four in the latter. It is one of the many penalties paid by those who enjoy the advantages of ease and affluence, and who live luxuriously. Those who drink too much fermented liquor, and do not take sufficient exercise, but more especially those who are overfed with animal food, are the persons principally afflicted with this disease, and not the labouring poor.

Ossification of the arteries is a change that can take place only gradually; and the obliteration of them being for the most part the result of a gradual process also, you will easily believe that certain premonitory symptoms may arise in the lower limb before the disease is gone so far as to produce mortification. If you cross-examine a patient who has mortification of the toes, he will generally tell you, that for three or four years preceding, he has had occasional pains in the lower limbs; a sense of numbness in them; that his feet were liable to be cold; that when they again become warm, after having been cold, they have been very painful; and that he has had a sense of weakness of the muscles. Such patients walk a short distance very well, but when they attempt more than this the muscles seem to be unequal to the task, and

they can walk no further. The muscles are not absolutely paralysed, but in a state approaching to it. The cause of all this is sufficiently obvious. The lower limbs require sometimes a larger and sometimes a smaller supply of blood. During exercise a larger supply is wanted on account of the increased action of the muscles; but the arteries being ossified or obliterated, and thus incapable of dilatation, the increased supply cannot be obtained. This state of things is not peculiar to the lower limbs. Wherever muscular structures exist, the same cause will produce the same effect. Dr. Jenner first, and Dr. Parry, of Bath, afterwards, published observations which were supposed to prove that the disease which is usually called angina pectoris depends on ossification of the coronary arteries. I will not say that such symptoms can arise from no other cause, but I know that they do arise from it in many instances. In examining the bodies of persons who died from the disease in question, I have sometimes found ossification of the coronary arteries to so great an extent, that they were converted into complete bony tubes, while there was no disease of any consequence besides. When the coronary arteries are in this condition they may be capable of admitting a moderate supply of blood to the muscular structure of the heart; and as long as the patient makes no unusual exertion, the circulation goes on well enough; when, however, the heart is excited to increased action, whether it be during a fit of passion, or in running, or walking up stairs, or lifting weights, then the ossified arteries, being incapable of expanding so as to let in the additional quantity of blood which, under these circumstances, is required, its action stops, and syncope ensues; and I say, that this exactly corresponds to the sense of weakness and want of muscular power which exists in persons who have the arteries of the legs obstructed or ossified.

The insufficient supply of blood to the limb sufficiently explains also the sense of numbness, which I mentioned as one of the premonitory symptoms of the disease. We must refer the pains of which the patient complains to the same source. With respect

to the latter symptom, I may further observe, that it exists in very different degrees in different cases. Sometimes the pains are slight, and at other times very severe. There may be pain in the toes, or pain in the heel, without any other manifestation of disease. The pain becomes excruciating, and it never ceases. The disease is called neuralgia, which means nothing. No remedy gives any relief, unless it be large doses of opium; and at the end of six or twelve months mortification of the foot takes place. I have already observed that what seems to be an accidental attack of inflammation is often the immediate forerunner of the mortification.

A very frequent occurrence is this. A patient cuts a corn; the knife penetrates too deep, and causes the toe to bleed, and a little inflammation follows; or, it may be that the foot is chilled by exposure to cold, and the patient goes to the fire to warm it, and that this is followed by a degree of inflammation, which, if the arteries were healthy, would be a chilblain and nothing more, but which, in their present condition, lays the foundation of mortification. Then, vesications take place; and when these burst, you find, at the bottom of them, the cutis to be dead. This may take place in one toe, or in many toes at the same time. Most frequently, the disease, having commenced in one toe, extends to the others, and then to other parts of the foot. Sometimes, even when there has been no pain previously, there is intense pain at this period. At other times the pain is trifling. With respect to this symptom, both in the early stage of the disease and afterwards, there is a great variety, such as it is not very easy to explain. In inspecting the mortified part you will always find that it has a margin of inflamed skin, and that, as this extends, the mortification follows it; the constitution being probably little or not at all disturbed, the pulse remaining at its natural standard, and the patient, in all other respects, thinking himself well. The disease, in fact, generally shows itself in the first instance in a chronic form. Occasionally, however, it is otherwise, and it exhibits all the characters of an acute disease.

The man to whom I alluded in the beginning of this lecture as old in constitution though not in years, being only thirty-six years of age, had been a soldier, and had served in Canada and in the East Indies, that is, in cold climates and in hot; he had by his own acknowledgment been a drunken fellow, and dissipated in other ways. Having been dismissed from the army as superannuated he gained his livelihood by working as a labourer in the Edgeware Road. Many times, on going to work, he suffered from cold and numbness of the feet, followed by violent pain. One morning in September (not a very cold time of the year), these sensations took place to a very great extent, severe pain and shivering followed, and his friends took him home in a coach. Two days afterwards he was brought to the hospital, and then all the toes of one foot were mortified, and one or two of the other. Under the treatment which was employed, and which I need not explain at this moment, he recovered. The dead toes came away, the sores healed, and he left the hospital as cured. Two years afterwards he was readmitted, having had an abscess on one instep, which had left a sinus extending some way under the skin. This occurred the year after I had been elected assistant-surgeon to the hospital; and not knowing better at that time, I introduced a director under the skin, and slit open the sinus with a lancet, making an incision two inches in length. I need not tell you that, with my present experience, I should have acted otherwise. Some inflammation followed the wound, which spread over the whole foot. The next day there was an extensive mortification; the pulse was frequent and weak, the skin hot, and the patient lay in a state of stupor. Two days afterwards he died. You will observe that, in each of these attacks, the disease had the acute form, and that in the second attack it terminated life in about four days. I examined the body after death, and found extensive ossification of the arteries of both lower limbs.

In the more ordinary cases, the disease having the chronic form in the first instance, nevertheless, if it goes on, assumes the acute form afterwards. The mortification may slowly spread up the

toes and feet, without any urgent symptoms, and this may be going on for weeks, and even for months; then, all at once, a fresh attack of inflammation takes place, the mortification extends rapidly, the constitution suffers, the pulse becomes feeble and rapid, the patient falls into a state of stupor, and dies in the course of a few days.

There is no form of mortification which is more dangerous than that of which I am now speaking. A large proportion, indeed, of the patients who are so affected, under any mode of treatment, die. You will not be surprised, that, under these circumstances, a great many different modes of treatment have been proposed. Where there is a disease that always gets well under a certain system, medical men have little inducement to make experiments; and those whose greatest anxiety it is to cure their patients make none at all. But in an intractable disease like this, it is natural that practitioners should be always looking out for new remedies. I do not propose to speak of all the variety of remedies that have been used or recommended; but I shall allude to the principal ones.

In the first place, those who have observed that the disease is preceded by inflammation, have said, 'Bleed the patient; treat it like an inflammatory disease.' I have no doubt that some have been led to recommend this, from a mistake respecting the pathology of the disease which I noticed in the last lecture; that is from having supposed that this peculiar kind of mortification of the toes depends on inflammation of the arteries. I have, however, explained to you that the two cases are quite different. I have seen one case in which the experiment of blood-letting was tried. The mortification was to a very small extent; there was very little inflammation round it, and the patient seemed to have a very fair chance of recovery; but immediately after the bleeding the mortification proceeded rapidly up the foot, and he died. Indeed, it appears to me, that we have no right to expect that this mode of treatment should be successful. There is inflammation it is true; but if the inflammation terminates in mortification, it is

because the part, on the principle which I formerly explained, cannot obtain that additional supply of blood which an inflamed part requires. Now, if you abstract blood, and thereby lessen the quantity in the system and weaken the action of the heart, the supply of blood to the limb must be diminished, and the cause of the disease aggravated.

An opposite plan of treatment to this has been recommended by others. They have said, 'This is a disease of weakness; give bark, quinine, serpentaria, and other tonics.' Now there are certain kinds of debility which will be relieved by these remedies, but here there is only a local weakness depending on disease of the blood-vessels. Will such remedies as these mend the condition of the arteries? Certainly they will not; but they will interfere with the digestion; they will prevent so much food from being converted into nourishment as would be converted into it otherwise; and they will interfere with the exhibition of stimulants, which really are useful, as I shall explain presently. I own that I have very little—I may almost say no—faith, derived either from theory or from practice, in the good supposed to be produced by the exhibition of what are called tonics. If you give anything of the kind, let it be ammonia, combined with the compound infusion of orange peel. Ammonia exhibited for a short time may be useful; but I think that there are objections to its long-continued use in this and in every other case. It appears to me that patients who take it for a long time are at last rendered weaker by it instead of stronger. It is an alkali, and produces the same effect on the blood that is produced by other alkalies. If given at all it should be only for a short time, and then it may be useful.

In the management of these cases there can be no doubt that one principal object to be kept in view is the maintenance of a sufficient supply of blood in the system. As the abstraction of blood is mischievous, so the opposite treatment is likely to be beneficial. Let the patient, then, be put on a system of nutritious diet, not overloading his stomach, so as to produce a red or yellow sediment in the urine, but taking as much food as can be easily

assimilated, and no more. Let him live chiefly, but not entirely, on animal food, which makes blood—if I may use the expression —of a better or stronger quality than that derived from vegetables alone. In addition to this administer some such stimulants as ale, wine, or brandy. You will generally find that persons who have mortification of the toes have been accustomed to take a good deal of fermented or spirituous liquor, and, being accustomed to it, that they cannot do without it Nor is this all. Those whose mode of life has been different will require the exhibition of stimulants under these new circumstances. The question, however, will arise in each individual case, What is the proper quantity to be exhibited? Some persons may want a bottle of one of the stronger wines daily; but very few, on this, or on other occasions, are benefited by so large an allowance as this. In the majority of cases, from the third of a pint to a pint daily will be sufficient. You should ascertain what have been your patient's previous habits, and then give him stimulants cautiously, observing the effect produced. There is one good rule of conduct in this respect, both in health and in disease; any quantity of wine that does not occasion heat of skin, nor raise the pulse, nor make the mouth clammy, nor render the patient nervous or irritable, may be given with advantage; but whatever does more than this does mischief.

In all cases of mortification of the toes it is of great consequence that you should attend to the state of the digestive organs. If the bowels are not in a proper state, the food cannot be properly assimilated; and the patient being confined, as he must be, to his bed, the bowels will not act without assistance. I do not advise you to give purgatives daily, but rather an active dose may be required once in three or four days, such as two or three grains of calomel at bed-time, with an aperient draught on the following morning, or blue pill with the compound extract of colocynth; and all my experience leads me to believe, that this is a very essential part of the treatment.

Mr. Pott was either the first who recommended, or the first who brought into general use, the exhibition of opium in cases of senile

gangrene. What is the modus operandi of opium here I will not pretend to say; but I have no doubt that in reality no internal remedy is so useful as this. I can scarcely remember, in my own practice, a single case of recovery in an old man affected with mortification of the toes in which opium had not been exhibited. But it is with opium as with wine; a good deal of discretion is necessary as to the exhibition of it. You must not begin with very large doses, which would overpower the constitution, and keep the patient dozing through the day. You may at first exhibit half a grain three times daily, and keep him slightly under its influence, but nothing more. If he continues to take it (and sometimes this may be necessary for months together), the dose will require to be increased; but you will never be able to persevere in the use of opium except you employ, in combination with it, the remedies which I last mentioned. In these and all other cases in which opium is taken daily, not only purgatives, but mercurial purgatives are necessary, otherwise it stops the secretion of bile, and does mischief. If I am not greatly mistaken, the result of a particular case will very much depend on this—whether opium does or does not agree with the patient. If it induces a feverish state of system, if it disturbs the sensorium, if it interferes with the digestion of the food, and especially if it cause the tongue to become brown and dry, it can do no good; while the more healthy action of it will be almost certainly beneficial.

With respect to the local treatment, the first thing is to keep the patient in bed. Not feeling very ill, he probably will wish merely to lie on the sofa; but this never answers; therefore send him to bed at once; if he strives against it for the first few days, he will be driven to bed at last, and will be worse off than if he had submitted in the first instance. Much indeed of the success of the treatment will depend on his being placed in the uniform warmth which a bed affords at the very commencement of the attack. Then, what local treatment is required besides? It is common to apply poultices made of the grounds of stale beer, or of red wine ar[illegible] [illegible]e recommend a solution of

chloride of soda. I was accustomed formerly to rub the legs and thighs with a stimulating liniment, but I soon left off this practice finding that it did no good; and I believe now, that if it does anything, it does harm. The toes mortify because they do not get a sufficient supply of blood. Rub the thigh and leg with a stimulating liniment, and it is the same thing, only less in degree, as blistering them; and what would be the consequence of applying blisters? They would draw the blood to other parts. It is wanted in the foot and you draw it elsewhere. It is something like taking blood from the arm—not indeed so mischievous; a mistake less in degree, but the same in kind. Whether this view of the matter be correct or otherwise, I am certain that I have never seen any good results in practice from this kind of treatment. Nor have I any reason, from what I have seen, to believe that those other applications which I have mentioned used, as poultices and lotions, are of any service.

Some few years ago, I was in consultation with the late Mr. Vance of Sackville Street. He had been surgeon, for many years, to Greenwich Hospital. Being always anxious to obtain what information I can from others, I observed to him: 'You must have seen, among the old men at Greenwich, a great number of cases of mortification of the toes. What have you found, on the whole, to be the best local treatment? He answered, that he had found nothing to answer so well as wrapping up the parts in carded wool. I did not understand from him whether he wrapped up merely the foot or leg, or the whole limb; but, he added that he usually left it on for many days at a time. It struck me that this was a very reasonable kind of practice. Wool is a very bad conductor of heat, and, wrapped round a limb, it must keep it of very uniform temperature, and, at any rate, save, in a great degree, to the constitution, the expense and trouble of generating animal heat. Soon afterwards, I had an opportunity of adopting Mr. Vance's mode of treatment. I had been poulticing a foot as usual, and the disease was going on, spreading from one toe to another, and up the foot. Carded wool is so prepared that it may

be drawn out in long flakes, several feet in length, and in these I wrapped up the foot; and then, thinking that I had better proceed further, I wrapped up the leg, and the thigh also, as high as the middle of the thigh. I applied it rather loosely, one flake over another, until the limb appeared to be three or four times more bulky than it was in its natural state. The result was excellent. The mortification never spread, from the time that the wool was applied, and the patient recovered. I have employed the same local treatment since in many other cases; and although, of course, it would be absurd to represent it as always successful, yet I am bound to say, that it has produced much better results than any other which I have ever employed.

In using the wool, recollect that you should apply it loosely and uniformly, and plenty of it. You may afterwards sew it all up in a silk handkerchief, and leave it unopened for several days; sometimes for a week. A simple dressing of calamine cerate may be laid on the mortified parts, being replaced whenever you change the wool. If the mortification stops, and the slough is separating, you may, on account of the discharge which takes place, change the wool every other day. The carded wool possesses, as a little consideration will prove to you, many advantages over the poultices. In the first place, if you use poultices, the limb is exposed alternately to cold air and hot poultices three times every twenty-four hours; that is, to repeated changes of temperature. It is only in the intervals that the heat is preserved. But if you wrap it up in carded wool, the alternate exposure to heat and cold, and the waste of animal heat, are altogether avoided. In another respect also, this mode of treatment is a great comfort to the surgeon, the patient, and the whole family. Two or three times daily, whenever the poultices are changed, the family inquire, 'Is he better? Is he worse? is the mortification stopped?' You are called upon to answer these unanswerable questions, and the patient's mind is kept in a constant state of excitement. But if you put on the carded wool, and leave it there for some days, his mind in the interval is tolerably tranquil; he lives upon the hope that when

the wool is next taken off, the parts will be found better; and such a state of mind is much more favourable to his recovery than the nervous anxiety which he experiences when the limb is examined more frequently. I believe that there are a very few cases to which you will not find this method of treatment applicable. If there be any, it is those in which there is great inflammation and heat of skin; and in these it may be prudent to defer the application of the wool until these symptoms are abated.

Whenever the mortification is arrested, you will be made aware of it by a line of separation on the margin. The process of separation proceeds, in favourable cases, until the bones of the toes come way. You may have to cut through some dead ligaments and tendons, in order to promote the separation of the offensive and putrid parts, but you must cut through nothing else. If you apply your knife to living parts, you will probably bring on a fresh attack of mortification. Leave the separation altogether to the natural process, which will do all that is required.

But there is another question. A man has mortification of the toes; and, independently of experience, you might naturally say, Here is a most dangerous disease; why not at once amputate the limb? It is probably unnecessary for me to tell you that it would be contrary to the established rules of surgery (for which I have great respect) to amputate a limb under such circumstances. I have never seen it done; I have never done it myself; but I have heard of cases in which the surgeon was—shall I say—thoughtless enough, or ignorant enough? to venture on this summary proceeding of cutting off the leg, because the toes were beginning to mortify. In every instance the stump mortified, and the patient died. The chance of recovery from mortification of the toes is not very considerable; that is to say, there is a great chance of the patient dying; but still, under proper treatment, there is also a fair chance of recovery, and you ought not to risk this chance by inflicting on the diseased limb so severe a local injury as belongs to amputation.

years, should be sufficient to incline you to reject it. The chance of a patient living long with such a disease is not such as should induce you to throw away the chance of an operation, where it is likely to be attended with advantage, but is sufficient to make you decline the having recourse to it, where other circumstances would lead you to doubt its propriety.

ON CORNS AND BUNIONS.

It cannot be doubted that the physical condition of man is on the whole much improved by civilisation. The increased length of human life sufficiently proves the fact. But it is not all gain; and the usages of society are productive of some evil, combined with much good. The evil affects the weaker more than it does the stronger sex. Young ladies, living much in heated rooms, taking little exercise in the fresh air, over-educated as to the acquirement of accomplishments, and using their muscles too little, lose the beautiful figure with which they are endowed by nature, and become affected with the various kinds of curvature of the spine, and weakness and distortion of the ankles. The same mode of life renders them liable to the innumerable varieties of hysterical disease, which in so many instances destroy the comfort, and I may say the dignity, of existence, enervating both the body and the mind, and making their condition altogether much less desirable than that of the poor peasant girl.

There is another order of diseases which we meet with more frequently among females of what are called the better classes than among other persons; namely, corns and bunions; and it is to this last humble, but not unimportant, subject, that I propose to call your attention in the present lecture.

A corn is in the first instance a thickening of the cuticle. Whenever the cutis is habitually subjected to the influence of pressure, it secretes a thick and horny cuticle. We find examples of this in the hands of many mechanics, and in the soles of the feet in those who walk much. But every thickening of the cuticle

I have told you that disease of the arteries lays the foundation of mortification, but the disease may exist many years without mortification supervening, until some accidental circumstance brings on inflammation. I have known persons with disease of the arteries, and several toes mortified in consequence of it, in whom the mortification has stopped, the sloughs have separated, the sores have healed, and who have lived for years afterwards. I know a gentleman who is now alive, and in good bodily health, at least he was so not long since, whom I attended for mortification of the toes nearly five years ago. This patient was treated by the application of carded wool, and I cannot but suspect that it did something more than relieve the disease at the time. At all events, it may be admitted as a question, whether the keeping the limb wrapped up in the carded wool, which is like keeping it in a vapour bath, may not ultimately produce some beneficial change in the condition of the diseased arteries; not indeed removing the phosphate of lime, which is deposited in their structure, but leading to their becoming gradually and slowly expanded so as to allow of a more liberal supply of blood to the limb. Whether this suspicion be or be not well founded, I suppose that no one will doubt that it will be prudent in all cases to advise the patient after his recovery always to wear a thick fleecy hosiery stocking; or to use some other kind of warm clothing, with a view to preserve the limb from the influence of the external cold.

I must add a very few words respecting the treatment during the process of separation of the dead parts. Bark, quinine, and other tonics, may be proper now, though they were not so before. Wine and a generous diet are still required; and some stimulating dressings, such as the unguentum elemi compositum, may be useful applications to the sores.

Mortification of the Integuments of the Leg.

There are cases of mortification of the integuments of the legs which appear to correspond very nearly to those of mortification of the toes, of which I treated in the last lecture. There is, however, sufficient difference between these two classes of cases to justify me in noticing them separately. Mortification of the integuments of the legs is of more frequent occurrence than mortification of the toes. We meet with it earlier in life, and in those who have less distinct marks of old age upon them; at the same time that the chances of recovery are greater in the former than they are in the latter. Undoubtedly, mortification of the leg (as well as mortification of the toes) frequently has its origin in organic disease of the vascular system. But then I find reason to believe that it takes place in many cases independently of organic disease of any kind—as in persons who are merely lowered and exhausted by previous illness, and whose heart does not act with sufficient power, because it partakes of the general debility. Such persons may and do recover perfectly, living for years afterwards without any symptoms of organic disease showing themselves.

Let me not, however, run the risk of misleading you. As the more fortunate cases of which I have just spoken do not include the whole of those which you will meet with in practice, so, when you are first called to a case of this kind, you must always look at it, in the first instance, with anxiety and suspicion.

A person comes to you with a vesication on the leg, and when the cuticle has given way you find a small slough at the bottom. The slough may go on spreading, probably very slowly, and with little or no suffering. By-and-by there is an attack of severe pain, with surrounding inflammation, and perhaps a rigor. In a day or two after this the mortification is found to be making greater progress. In bad cases the mortification spreads with frightful rapidity, with much constitutional disturbance. The pulse becomes irregular, feeble, intermittent; the tongue is dry and brown; the patient wanders in his mind, then becomes

comatose, sinks, and dies. Such is the history of one of the worst cases of mortification of the skin of the leg; corresponding, you will perceive, a good deal in the symptoms to those of senile mortification of the toes. There is a chronic attack of the disease at first, with little constitutional disturbance, the mortification spreading slowly; the disease afterwards assuming an acute form, and in a short time terminating life. But, in other more fortunate cases, the mortification goes on spreading slowly with little or no suffering, with no great constitutional disturbance, and at last, under proper treatment, stops, the slough comes away, the sore granulates and heals. As I told you before, the patient who has suffered in this manner may possibly live for years, and have no return of the disease.

Sometimes the disease appears in a somewhat different shape; there is a simple varicose or other ulcer of the leg; by-and-by the surface of the ulcer assumes a dark colour, the granulations die, the mortification extends to the skin at the margin, and spreads slowly or rapidly, according to circumstances. Perhaps the slough may separate, the sore begin to heal, and actually heal to a certain point, then mortification may begin again and go on to a certain extent, and then stop a second time. In this way I have known the disease to linger on for a year or more, sometimes terminating well at last, and at other times terminating unfavourably.

The treatment of these cases is very similar to that of the cases which I noticed in the last lecture, and, therefore, I need not occupy your time long with this part of the subject. The patient ought to be kept in the recumbent posture, in the uniform warmth of bed. This I conceive to be a most essential part of the treatment, though it may sometimes require a considerable effort of your persuasive powers to carry it into execution. I have known patients thus afflicted walk to my house to see me, and have had great difficulty in persuading them that they were sufficiently indisposed to make even confinement to the house necessary.

With respect to the local treatment; in the greater number of cases, I find none to answer so well as this: apply some simple

dressing (calamine cerate for example) to protect the part, and then wrap up the limb in carded wool, in the way which I explained in the last lecture. This should be left undisturbed, in the first instance, for several days, the period, however, varying afterwards according to the quantity of discharge. There are a few cases to which this treatment is not at first applicable; I allude to those in which there is a good deal of surrounding inflammation, and great heat of the limb. Under these circumstances the sufferings of the patient may be aggravated by keeping the limb wrapped up in wool. The part then requires to be kept cool, and you may apply a piece of lint dipped in water and kept constantly moist, or a simple poultice. The water dressing, however, is the simplest application, causing the least trouble to the patient, and is, at any rate, as effectual as the poultice. But here also there is a period, when the heat and pain have in some degree subsided, in which you may have recourse to the other treatment. When the slough has separated, a broad ulcer is left, seldom very deep, and often quite superficial, and for the treatment of this no specific rule can be laid down. Usually, the sore does not require any very stimulating application. I have found, on the whole, the Barbadoes naphtha (if it be genuine) a better remedy for the ulcers left after the slough has separated, than anything else. It is a mild and soothing application, yet it has a great tendency to clean what we call a foul ulcerated surface. It is applied thus: you dip lint in it, lay it upon the surface of the sore, place a piece of oiled silk over it, and then apply a bandage, not very tight. This may be changed once, and under certain circumstances twice, daily. If the limb be cold, and the circulation in it feeble, you may continue to apply the carded wool, or a thick fleecy hosiery stocking, after the slough has separated; and in general it will be prudent for the patient to wear a warm stocking ever afterwards.

With regard to the constitutional treatment, your first attention must be directed to the state of the digestive organs. Generally, in these cases the patient requires an occasional purgative; that

is, once in four or five days, or once in a week, according to circumstances. I have given bark and other tonics, ammonia, and so on; but with respect to such remedies I may refer you to the observations which I offered when speaking of mortification of the toes. It is most essential that the patient's stomach should be able to digest food, and you should take care not to overload it with medicine if it interferes with his food, which is very much better than medicine. Wine is generally required, except just at the period when there is much inflammation and pain in the leg. With respect to this also, I may recall to your minds what I said in the last lecture. Opium in these cases is, according to my experience, very serviceable, as it is in cases of mortification of the toes, but subject to the same careful observation and restrictions. If it makes the tongue dry, if it interferes with digestion, it does harm; but otherwise it does great good. You may exhibit it at first in moderate doses, increasing them according to circumstances, and always bearing in mind, that when you have occasion to exhibit opium, mercurial purgatives will be especially required. When the sore has become quite clean and healthy, you may apply strips of diachylon or soap-plaster in a circular manner round the limb, with a bandage from the toes to the knee, treating it as you would treat other sores of the leg.

Peculiar Species of Dry Gangrene of the Skin.

The wax model which you see on the table exhibits the appearances of a very peculiar sort of mortification, which is not well described, so far as I know, by surgical writers. If I recollect rightly, however, there is a brief notice of a case of this kind in M. Quesnay's book on gangrene—a very excellent work, published by an eminent French surgeon about the middle of the last century.

I have extracted from one of my old note-books the history of the first case of the kind that I met with; and I shall read it as it here stands, believing that I can adopt no better method than this of conveying to you a knowledge of this disease.

'Susan Orange, a girl 14 years of age, was an out-patient of the hospital, under my care, in October 1812, on account of some kind of eruption of the skin of the left arm. She appeared full grown, but had never menstruated. She had a pale sallow complexion, with a very feeble pulse, altogether exhibiting marks of a very languid state of the system. About the end of February 1813, the eruptions became very much relieved.' (Of this early part of her case I have only some short notes; and it is not even stated what was the exact character of the eruption. Whatever they were, they did not exist to any very great extent.) 'Almost immediately after the eruptions in the arm had disappeared, in the beginning of March 1813, she was seized with pain, confined to a single spot on the left fore-arm. The pain lasted three hours, and then subsided; but that part of the skin of the fore-arm to which the pain had been referred, and which was of about the extent of a shilling, was left with a white and shrivelled appearance. It was, in fact, dead; and, in a short time, the dried skin became hard and horny, of a straw colour, somewhat resembling a piece of parchment in appearance. As it dried, the small vessels in the skin became apparent, injected with red blood in a coagulated state. In a few days the slough separated, leaving a very superficial sore, which granulated, and healed under some simple treatment. But before this sore was well closed, the patient had a second attack of pain referred to the margin of the cicatrix, and this was followed by a second slough very similar in appearance to the first. There was, however, this peculiarity in it, that, while it formed a complete zone or circle round the cicatrix, it was at some little distance from it, there being a narrow band of sound skin left between them. The second slough gradually separated, and the sore which it left healed; but before this process was complete, there was a third attack of pain at the margin of the second cicatrix. A third slough formed, nearly similar to the last; that is, presenting the appearance of a zone, with an intermediate zone of sound skin between it and the last-formed cicatrix. The sore left by the third slough healed like all the others. On the 9th of

May there was another attack of pain, referred to another spot on the inside of the left fore-arm. It lasted a day and a night; was more severe than on the former occasions, and was followed by the destruction of a piece of the skin, two inches in diameter. The slough presented the same appearances as the former ones, and came away at the end of a fortnight, being of the thickness of a crown piece. It left a sore, which healed, but slowly. About the middle of May she began to experience a slight pain upon one instep, which continued; and on the 4th of June this pain became very intense, entirely preventing sleep on the following night. On the morning of the 5th of June the pain had subsided, but a slough was formed as large as the palm of a man's hand, covering the greater part of the instep, which presented the same appearances, and ran the same course, as those on the fore-arm, except that the separation of the slough, and the healing of the sore, were more tedious than had been the case in the upper extremity. After this no fresh sloughs formed for a considerable time, though the patient continued in the same feeble state of health. She left the hospital, and I lost sight of her until October in the same year, when she was admitted into the physician's ward, under Dr. Warren. She remained there for a considerable time in very weak health, with occasional formations of the same white cutaneous sloughs in different parts of the body. At last she quitted the hospital, and I lost sight of her altogether. But Mr. Hammerton of Piccadilly, who was apothecary of the hospital at the time, informed me that she went to stay with some friends who lived near Windsor. I have reason to believe that she died there, and that there was no post-mortem examination.'

The model which you see on the table was taken from a patient of Mr. Keate's, and it very accurately represents the peculiar appearance which the sloughs assumed in the case of which I have given you the history. You see the disease in its various stages; some of the sloughs are recently formed, and in other places they have separated, and there is a clean granulating ulcer. The only circumstance that I remember to have been different in the case

of Susan Orange, is, that there the vessels injected with red blood in a coagulated state, and ramifying through the white slough, were much more distinct than they are in this model. Mr. Keate's patient became a great deal better, and it is supposed that she ultimately recovered, under the continued use of tonics. Tonics, and especially steel, were administered to the first patient, whose case I have mentioned, without any advantage. I had a patient in the hospital who laboured under a disease very similar. This also was a woman with irregular menstruation. She was liable to attacks of pain in the leg, which ended in the formation of thin sloughs. The only difference between this and the other cases was, that each slough was preceded by a vesication. The slough itself had the appearance which I have just described. This patient improved very much under the long-continued use of small doses of sulphate of copper; but at last she left the hospital, and I lost sight of her: and, indeed, you must be aware that it is very difficult to get the whole history of one of these cases, or of other cases, in which the disease is protracted for a great length of time.

Mortification from the Ergot of Rye.

Cases of mortification of the limbs are described as arising from the use of certain deleterious articles of food, especially from eating bread made of blighted rye, or rye containing ergot. It is said that people who eat bread of this unwholesome kind are liable to mortification of the extremities; and that whole families become affected with mortification under these circumstances. I have never seen any of these cases myself, and I cannot obtain from books any satisfactory information as to their pathology. I am not aware that there is any account extant of the appearances which they exhibit on dissection. I think it right to notice the subject; but as I can tell you nothing more of it than you can find in books, I shall not dwell upon it.

Mortification of the Extremities from unknown Causes.

In one of the earlier volumes of the 'Annual Register' you will find a very curious account of a whole family becoming affected with mortification of the extremities, though it is not stated that they had been living on any deleterous article of food. The account is given by a physician in Suffolk of a family in that county, and nothing is mentioned which throws light upon the cause of the mysterious disease. The father, mother, and five children, if I remember rightly, were all affected. The lower extremities mortified in all except the father, in whom the fingers only mortified. Mr. Solly, in the two last volumes of the 'Medico-chirurgical Transactions,' has given the history of a child, in whom one extremity after another, without any evident reason, mortified. The disease went on for twelve months, before it terminated fatally. The limbs had all mortified, and sloughs had separated; a sort of natural amputation having taken place. The child died, and the body was examined after death, but the examination threw little light on the pathology; and the cause of the disease is still mysterious.

In practice you will every now and then find other forms of mortification which it is impossible to notice in lectures.

Anthrax or Carbuncle.

There is, however, one other form of this disease which, I think, deserves your especial consideration, and with an account of which I shall finish this division of my course of lectures. The disease to which I allude is what is commonly called anthrax or carbuncle. There is something more to be said on this subject than upon ordinary cases of inflammation terminating in gangrene; and it is for this reason that, although I have referred to it in one of my former lectures, I shall again call your attention to it.

Persons who become affected with carbuncle are most frequently those belonging to the affluent classes of society; and such especially as have eaten and drunk a good deal, and lived freely, and

have apparently enjoyed robust health, are liable to this disease, after they have passed the middle period of life. Dr. Prout has observed a very peculiar circumstance connected with carbuncle; namely, that it frequently exists in combination with that form of diabetes in which there is sugar in the urine. The patient is generally in a state of ill health before the carbuncle appears; and often he feels ill, though he hardly knows how to explain in what respect he is so, until the carbuncle shows itself.

Carbuncle, in its commencement, does not always present itself just in the same manner. Generally there is a red cutaneous tubercle, or pimple, which becomes exceedingly painful, resembling a boil, but which, instead of soon terminating like a boil, goes on increasing in size, becoming more and more painful, with much induration at the base. Supposing the disease to be left to run its course, it will proceed thus: the induration goes on increasing in degree as well as in extent, the skin becoming hard and brawny, and of a dark crimson colour, especially at the centre of the induration. I have known the induration at last to occupy a space not less in size than that of a soup-plate. The patient all this time suffers exceedingly from a burning pain, with a sense of weight, constriction, and stiffness. His health is otherwise deranged, his pulse is frequent, his tongue furred; sometimes he is sick, and perhaps he nauseates his food. In cases that terminate ill, you will find, after a certain time, when the induration is very extensive, the pulse becoming weak, irregular and intermittent; there is great prostration of strength, a hurried manner, delirium, coma, and this last symptom precedes death. But the disease may terminate more favourably, even without the aid of surgery. The central part of the hardness becomes softer; you can feel an imperfect fluctuation under the fingers; the skin ulcerates in one small point, then in another, till you find it perforated in a great number of points, and a white slough is seen through the perforations. By-and-by the intermediate portions of the skin between these small openings perish and become identified with the slough beneath. There is a discharge of a small quantity of thin matter,

and a large slough of the cellular membrane is seen underneath. Some time afterwards the slough comes away, consisting of cellular membrane infiltrated with pus and lymph; and then the exposed surface granulates and heals.

But in other cases the disease, in its origin, is somewhat different, showing itself not in the skin, but in the subcutaneous texture. There is a hard lump in the cellular membrane under the skin, which is excessively painful; this goes on increasing till it adheres to the skin; then the skin becomes discoloured, and the disease runs the same course as in the other cases, in which it begun with a red tubercle.

The disease occurs in men more frequently than in women, perhaps because they live on the whole more intemperately. It occurs especially in those who are over-fed with animal food. It is met with more frequently on the back, between the shoulders, than any where else; sometimes on the back of the neck, and sometimes on the occiput. I have observed that when it is on the back of the neck, and especially when it is on the occiput, the disease is very dangerous; but by far the greater number of patients recover in whom the disease is situated elsewhere, and in whom a proper treatment is adopted. The disease is not very common on other parts of the body; I have, however, known it to occur on the nates and thighs, and once upon the face. I was sent for to see a gentleman who was said to be very ill, and when I visited him I could not at first conceive what complaint he had. I never saw such a man's face before, and it took me some time to understand what it was. There was a carbuncle, the central part of which was on the nose, and you may conceive, better than I can describe, the strange appearance of the human face under such circumstances.

This disease, I have said, occurs in those who have lived very freely, and, like most diseases to which such persons are liable, requires to be treated, not by lowering the patient, but by giving him nourishment, as far as his stomach can digest it; and wine or ale, as far as he can take them without being heated and

rendered feverish and irritable. Where there is excessive pain you must administer opium. It is better generally, when the patient is suffering a great deal of pain, to give a good dose of opium at night; but if possible, to avoid giving it in the day-time. There is always a great objection to the exhibition of opium, as it will interfere with digestion and confine the bowels; but there is a still greater objection to the want of sleep, and you must give it as the least of two evils. If you administer any medicine besides, it should be bark, quinine, and other tonics; but I do not think that in general, during the active stage of the disease at least, you will find much good from anything but nourishment, wine, and opium, with an occasional purgative. The purging, however, should not be carried to an excess. Moderate purgatives, administered at intervals, may be useful and indeed necessary; but a repetition of drastic purgatives will be injurious.

But the principal remedy in these cases belongs to the local treatment. I described to you the disease, supposing it to be left to run its course, and it is always desirable to know what a disease will be if you let it alone; but, nevertheless, I do not advise you to let this alone. Until there is an opening in the skin, until the pus begins to escape and the slough is exposed, the brawny hardness of the skin continues to spread. The slough and matter require an exit, and you must give them an exit by making a free crucial incision through the carbuncle. Make, not a small partial incision in the middle, but one which extends completely through the whole brawny tumour, from one side to the other, and then another at right angles to the first, also completely through the tumour and down to the bottom of it. If this be done effectually, and not too early, you will generally find that the progress of the induration is stopped. If it should, however, continue to extend, you must follow it with an incision on another day. These incisions being combined with good medical treatment, and attention to the constitution, the patient generally recovers. In making the incision you will find that you divide a thick slough

of the cellular membrane, and it has a peculiar appearance, as I have already explained, in consequence of its being infiltrated with lymph and pus, so that when it comes away it is more than the mere destruction of the living parts will account for. After you have made the incisions you may apply a poultice to the part, and change it three or four times daily. It is not uncommon to apply some digestive ointment, such as used to be called basilicon, or the unguentum elemi compositum; it being supposed that this favours the separation of the slough. I do not know whether such applications have this effect or not; perhaps they may; at any rate, they can do no harm. When the sloughs are separated, the patient's system will be relieved; but he will require support, both from food and medicine. If they were not useful before, he will now derive benefit from tonics, especially from bark. Although I much doubt the efficacy of these remedies in the early stage of the disease, I have no doubt they are very efficient and very useful at this period, when the sloughs have separated.

M. Dupuytren says that there are elongations of the subcutaneous cellular membrane which extend into the skin, and that when one of these becomes inflamed it forms a boil, but if several be inflamed they form a carbuncle. It may be so; the disease may begin in the elongations of the cellular membrane of which he speaks, as far as I know. But there is something more than this. I do not believe a carbuncle to be a mere local affection; it is a constitutional disease, and is always preceded by something wrong in the general health. It seems to me as if there were something like a poison in the circulation, which is thrown out of it into the cellular membrane in cases of carbuncle, so that we might be justified in classing this disease with small-pox and the other exanthemata. In a case of small-pox, there is first an attack of fever, which is relieved as soon as the pustules appear; and as these contain the variolous poison, there is little reason to doubt that it is the expulsion of the poison from the circulation that relieves the fever. The case which I am about to relate seems to indicate that something like this happens in cases of carbuncle.

A gentleman, an old acquaintance of mine, formerly a surgeon of eminence in a provincial town, but who had retired from his profession, about sixty-three or sixty-four years of age, called upon me some years ago, at my own house, in the morning, and said he had a complaint in his back, and that he suffered a great deal of pain. On examination I found that there was a carbuncle. I sent him home, having told him to poultice it. Two or three days afterwards, it being, as I supposed, in a proper state for the operation, I made a crucial incision through it. He was very much relieved, and was going on very well, when there appeared another carbuncle, but on a smaller scale than the first. It was not a pimple in the skin, but the subcutaneous form of the disease which I have already mentioned. I told him what I believed to be the case. He said that it did not give him a great deal of pain, and I therefore thought it would be better to let it advance a little further before I opened it. It went on increasing, the skin over it became purple, and it was assuming the ordinary appearance of carbuncle. In the meantime he continued well in health, and appeared indeed to have scarcely any ailment, except the local complaint. But a day or two afterwards, on calling upon him, and believing that it would now be right to incise the tumour, I found him in bed. On inquiring the cause, he said in a faint voice, 'Oh! my dear friend, I am dying.' I expressed a hope that that was not the case. 'Oh, yes,' said he, 'I am dying.' I found that indeed his words were true. His skin was cold and clammy, and the pulse scarcely perceptible. I asked him how long he had been in that state. His answer was, 'During the night, all the pain subsided, and at the same time I became ill. I believe the carbuncle itself has disappeared;' and so it had. When I examined the back I could find scarcely a vestige of it. He died in less than twenty-four hours after this change had taken place.

Another circumstance is worthy of notice, as confirming the view which I have taken of the pathology of this disease. It frequently happens, when a patient has recovered from a large

carbuncle, that other smaller ones, like boils, appear on different parts of his body; and a succession of these, gradually becoming smaller and smaller, may continue for many months, or even for one or two years.

ON CHRONIC ABSCESS OF THE TIBIA.

I NEED not tell you that bones are organised like soft parts; that they have the same apparatus of arteries, veins, nerves, and cellular tissue, and that they have, superadded to these, the unorganised phosphate of lime. Having the same tissues as the soft parts, they are liable to very much the same diseases. But the characters of these diseases, their symptoms, progress, and treatment, are much modified by the presence of the unyielding earthy material which I have mentioned. Inflammation takes place in bones as it does elsewhere; it goes on to suppuration, and abscess forms in their interior, as in the interior of other organs. But there are these points of difference: an abscess formed in a bone cannot very readily come to the surface, so that it may remain pent up for an indefinite period. Then the soft parts will stretch, bones will not; and the consequence is, that an abscess situated in the latter is attended with much greater pain than that which occurs in the former. The patient's sufferings are consequently more severe, and they are protracted for a very much longer period.

An abscess may occur in the interior of any bone in the body, but, according to my experience, we meet with it more frequently in the tibia than in any other. For reasons which you will understand presently, an abscess in the tibia has especial claims on the attention of the practical surgeon, and these considerations have led me to take this disease as the subject of the present lecture.

It was as long since as the year 1824, that I was consulted by a young man, twenty-four years of age, under the following circumstances:—There was a considerable enlargement of the lower end of the tibia, but the ankle-joint admitted of every motion, and was apparently sound. The skin was thin, tense, and closely adherent to the periosteum. There was constant pain in the part, generally of a moderate character, but every now and then it became excruciating, keeping the patient awake at night, and confining him to the house for many successive days. It made his life miserable, and his nervous system irritable; one effect of which was, that it spoiled his temper, and thus produced another set of symptoms in addition to those which were the direct consequences of the local malady. The disease had been going on for twelve years. He had consulted many surgeons respecting it, and had used a great variety of remedies, but had never derived benefit from anything that was done. Instead of getting better, he every year became so much worse. I tried some remedies without any advantage, and at last recommended that he should lose the limb. Mr. Travers saw the patient with me, and agreed in this opinion. Amputation was performed; and the amputated tibia is now on the table. You will see how much the lower end of it is enlarged, and that the surface of it presents marks of great vascularity. The bone in the preparation is divided longitudinally, and just above the articulating surface there is a cavity as large as a small chesnut. This cavity was filled with dark-coloured pus. The inner surface of it is smooth. The bone immediately surrounding it is harder than natural. The examination of the limb explained all the symptoms. The abscess of the tibia was constantly stretching the bone in which it was formed, or rather, if I may use the expression, trying to stretch it, and thus caused the violent pain which the patient suffered. On observing these appearances, I could not help saying, that if we had known the real nature of the disease, the limb might have been saved. A trephine would have made an opening in the tibia, and have let out the matter. It would have been merely applying the treat-

ment here that we adopt in cases of abscess elsewhere. You open a painful abscess of the arm with a lancet; you cannot open an abscess of the bone with a lancet, but you may do so with a trephine.

About two years after the occurrence of this case, I was consulted by another patient, twenty-three years of age, who had an enlargement of the upper end of the tibia, extending to some distance below the knee. He suffered a great deal of pain; the part was very tender, and there were all the symptoms of chronic periostitis. I made an incision over the part, dividing everything down to the bone, and found the periosteum very much thickened. There was a new deposit of bone under the periosteum softer than the bone of original formation. This operation, as in other cases of chronic periostitis, relieved the tension and the pain, and the patient was supposed to be cured. However, about a year afterwards, in August 1827, there was a recurrence of the pain; the enlargement of the tibia, which at first had in some degree subsided, had returned, and it continued to increase. In the enlarged tibia there was one spot a little below the knee, where there was exceeding tenderness on pressure. I need not describe the symptoms more particularly; it is sufficient to say, that they bore a very close resemblance to those in the last case; the only difference being, that as the disease had been of shorter duration, the pain was less severe, and that the tibia was affected in the upper instead of the lower extremity. I concluded that there must be an abscess in the centre of the bone, and applied the trephine to the tender spot. I used the common trephine made for injuries of the head, which, having a projecting rim or shoulder, would penetrate only to a certain depth. However, it enabled me to remove a piece of bone of sufficient thickness to expose the cancellous structure. Then with a chisel I removed some more of the bone. Presently there was a flow of pus in such quantity as completely to fill the opening made by the trephine and the chisel. It seemed as if the bone had been, to a certain extent, kept in a state of tension by the abscess, and that, as soon

as an opening was made into it, it contracted and forced up the matter. The patient was well from that time; the wound healing very favourably, and he has never had any return of the disease.

Some time after this I was consulted by another patient, who had an enlargement of the lower end of the tibia. He suffered constant pain, but every two or three weeks there was an exacerbation of it, and it was then very excruciating, almost intolerable. These attacks sometimes lasted two or three hours; sometimes one or two days. This gentleman, when he came under my care, was thirty-four years of age. He traced the disease back for eighteen years, and stated that it began in the following manner: on going to bed one evening, he felt a sudden pain in or just above the ankle-joint; the next day there was a swelling in this situation; he was laid up with inflammation, and two abscesses burst in succession, but afterwards healed. He continued well for some considerable time, and then he was again seized with pain in the ankle. This pain was not constant, but occurred at intervals. Sometimes there were several months during which he was quite well. (These points are worthy of notice with respect to the diagnosis, as I shall show you presently.) After some years, however, the pain was never absent, and he fell into the state in which he was when he sought my advice. On examining the ankle I found the tibia considerably enlarged. The motion of the joint was perfect, but there was one tender spot on the inside of the bone that seemed to indicate the seat of an abscess. I applied a trephine here, and penetrated into a cavity large enough to receive the end of the finger. There gushed out a quantity of matter, perhaps a drachm, or more. The inner surface of the cavity was exceedingly tender, so that the introduction of the finger, or even of a probe, could scarcely be borne. On the following day there was a good deal of inflammation in the neighbourhood of the part in which the operation was performed; and in the course of a few days more an abscess formed, which burst externally just below the ankle. This was followed by some other collections of matter, apparently on the surface of the bone,

but they all healed without any exfoliation. The opening made by the trephine became filled up with granulations, and the wound healed favourably. This took place many years ago; I have seen the patient every now and then since, and he has continued perfectly well.

I have had two cases of this kind under my care in this hospital. One was a boy, who had a considerable enlargement of the lower end of the tibia, attended with a great deal of pain. I trephined the bone, and let out nearly half an ounce of matter. The relief was immediate, and the patient recovered without any untoward symptoms. The other patient was a man, whose case I will give you a little more in detail from the notes before me. He was admitted in October 1838, being then twenty-four years of age. There was an enlargement of the upper end of the tibia, extending to the distance of two and a half inches below the knee. The circumference of the leg at this part was about an inch more than that of the leg of the other side. The skin over the enlarged bone was tense, and there was a blush of dark redness on the inside. He said that six years ago there took place some enlargement of the head of the tibia, attended with a dull pain. Leeches were applied, and some other treatment was had recourse to—I know not what. The pain continued for about six months; it then subsided, and he became quite free from it, until about three months before he came to the hospital, when it returned, and the bone began to enlarge. The pain at the time of his admission was so severe that he could not sleep at night. It affected his health; he had lost flesh, and could take little or no food. I concluded that there was probably an abscess in the tibia, but as the disease had been only of short duration, I thought it might be better to treat it as if it were merely chronic inflammation in the first instance, and have recourse to some other remedies before I performed the operation. I prescribed, therefore, calomel and opium, sarsaparilla, and iodide of potassium, one after the other. At last, there being no amendment, I applied the trephine on a part in which the bone appeared more tender than elsewhere, and

thus exposed an abscess, which contained two or three drachms of pus. The relief was immediate, and soon afterwards the patient left the hospital cured.

The following case has occurred in my practice lately. In the year 1841, a young lady consulted me on account of pain in the lower end of the tibia. It had begun in the spring of 1835, when she had an attack of what appeared to be inflammation in that bone. The pain was at first confined to the lower end of the tibia; but, afterwards, she had in addition to it, other pains, apparently of a nervous character, extending up the limb to the hip. She was of an hysterical constitution, which might, perhaps, make the diagnosis of the disease a little more difficult, the hysterical pain being mixed up with the other. However, I found her having occasional attacks of most severe pain in the lower end of the tibia, the bone being enlarged and tender to the touch; and, after a most careful examination, I was satisfied that there must be an abscess in the interior of the bone. Accordingly, I recommended the application of the trephine. She could not then stay in London; and as her surgical attendant in the country did not accord with me in opinion, the operation was not performed. She dragged on a very uncomfortable existence for four years more. In the interval she was married, travelled abroad, had various opinions, and tried different remedies, both here and on the continent, but obtained no relief. Last August (1845) she again came under my care, the tibia being still further increased in size. At times she was quite free from pain; at other times she had severe attacks of it, so that she could not sleep at night.

the blood. At the bottom of the bone removed by the instrument there was a cavity that would just receive the end of the finger, and from which the fluid had escaped. After this she had considerable pain for some time, but evidently of an hysterical character. She went into the country; but I have lately seen her in London, and have been gratified by finding that she is free from all her former symptoms. The wound has been for some time healed, and the lower end of the tibia is already reduced to its natural size. The piece of bone that was taken away is upon the table; it is more hard and compact than it ought to be just above the ankle, where, in the natural state, there is a cancellous structure. You will perceive on its under surface one corner of the cavity in which the sero-purulent fluid was lodged, presenting a smooth surface.

Since I first published some account of this operation in the 'Medico-chirurgical Transactions,' vol. xviii., it has been successfully performed by Mr. Liston on a private patient, whom I saw in consultation with him; and also on a patient in University College Hospital. It is satisfactory to know that this simple method of treatment has already preserved many limbs which must have been sacrificed otherwise, and it cannot be doubted that it will be the means of preserving many more when it is more generally adopted by those who are engaged in operative surgery.

And now the following important questions present themselves. What are the circumstances that would lead you to suspect the existence of abscess in the tibia? And supposing it to be probable that such an abscess exists, what are the exact steps of the operation to be performed for its relief?

When the tibia is enlarged from a deposit of bone externally—when there is excessive pain, such as may be supposed to depend on extreme tension, the pain being aggravated at intervals, and these symptoms continue and become still further aggravated, not yielding to medicines, or other treatment that may be had recourse to, then you may reasonably suspect the existence of abscess in the

centre of the bone. You are not to suppose that there is no abscess because the pain is not constant; on the contrary, it very often comes on only at intervals, and in one of the cases which I have related, there was, as I then mentioned, an actual intermission of seven or eight months. After the disease had existed a certain number of years, indeed, the pain never entirely subsides, but still it varies, and there are always periods of abatement and exacerbation. The combination of circumstances which I have described will fully justify you in making an opening into the bone with a trephine. But how will it be if you are mistaken? This will not often occur; but if it should, the taking out a circle of bone can be of no consequence; no injury follows the operation: it is unattended with danger. The operation itself is very simple. You expose the surface of the bone, and make a circular opening with a trephine at that part where there seems to be some tenderness and some pain on pressure. One principal thing to be attended to is that you have a proper trephine. You do not want so large a one as for the cranium, and it must be somewhat differently constructed. Those which lie on the table are made for the purpose. One is of very small diameter, but, generally, it is quite sufficient. The common trephine is made with a projecting rim or shoulder, and if there be much enlargement of the bone, it will not penetrate deep enough to reach the abscess. It is true that you may break away the bone afterwards, by means of a chisel, but the operation may be more easily performed with a trephine having no projection, which will at once penetrate to the abscess, however deep it may be, and render the chisel unnecessary.

tion? The patient may continue in torture for a great number of years, losing all the best part of his life; or a worse event than that may take place. The preparation which I show you is one of the oldest in the museum. I attended a patient who laboured under various diseases; there were tubercles in the lungs and vomicæ, dead bone in the ribs, and some other local complaints which I forget. Besides all this, he had an enlargement of the lower end of the tibia, attended with excessive pain; pain, indeed, hardly to be borne, which came on in paroxysms lasting for many hours, and then in some degree subsiding. By-and by an abscess appeared externally, in the neighbourhood of the enlarged tibia, and then the pain ceased. Under this complication of disease the patient sank, and died; and on examining the body I found an abscess in the centre of the tibia. One effect of the abscess had been to cause absorption of the cartilage of the ankle-joint. It might have made its way into the joint, but it took another course; and if you examine the preparation, you will perceive on one side of the tibia a round aperture, by which the matter escaped, and by which the external and internal abscesses communicated with each other. It is plain from this, that such an abscess cannot exist for ever without the joint being endangered. In the year 1830, a young gentleman, about thirteen years of age, came under my care. He had just returned from Paris, where he had had an attack of inflammation of the bone and periosteum of the tibia, for which he had been attended by the late Baron Dupuytren. The inflammation terminated in necrosis. I removed some portions of dead bone; others exfoliated without any operation; and for three or four years pieces of bone continued to come away, none of large size. Among the sinuses that were open, there was one a little below the knee-joint; I could not ascertain whether bone had come from it or not, but it closed, and the patient appeared quite well. In the year 1835 or 1836, however, I was consulted by him again on account of some pain in the upper end of the tibia. Whenever he walked, the knee-joint swelled, becoming full of fluid. I applied leathern splints, kept him quiet,

and he seemed to recover. I then left off the splints, and allowed him to walk as usual. The result was, that in the course of two or three days the knee was again filled with synovia. On a blister being applied, the fluid was again absorbed, but reappeared again on exercise. Taking these circumstances into account, and remembering that there had been pain for some time in the upper end of the tibia, and formerly a sinus leading to the centre of the bone, I thought it very probable that the knee-joint was only secondarily affected in consequence of some disease in the neighbouring portion of the tibia. Mr. Keate and Mr. Liston saw the patient with me, and agreed in the opinion that it would be prudent to perforate the head of the tibia with a trephine. Finding as well as I could, the most tender spot, I performed the operation, and out gushed three or four drachms of matter. There was no pain afterwards; the wound gradually contracted and healed, and now when the patient walked, there was no swelling of the knee. The operation was performed in 1837, and I have seen the patient occasionally ever since, and know that he has had no return of the complaint. But is it possible to doubt that if the state of things I have described had gone on, the knee-joint must have been destroyed? What would have happened if recourse had not been had to the operation? A case occurred in this hospital not exactly similar, but sufficiently so to enable me to answer this question. A man of the name of Hendrow was admitted in February 1837, with the upper end of the tibia enlarged just below the knee-joint. There was an opening leading down to the centre of the bone, and a probe introduced into it came in contact with a piece of bone that appeared to be dead and loose. It was plain that a piece of bone in the centre of the tibia had exfoliated and formed an abscess which had afterwards made its way externally. But that which renders the case interesting as connected with the present inquiry is this; whenever the patient took exercise there was an accumulation of fluid in the knee-joint, just as in the last case. The swelling disappeared on the joint being kept quiet; and the motion of the joint was perfect, or nearly so.

It seemed plain that there was a piece of dead bone in the centre of the tibia, which was somehow or other doing mischief to the knee-joint, and the course to be pursued was not less evident. I applied a trephine so as to enlarge the opening through which the probe had passed. It penetrated into a cavity in which there lay a piece of dead bone, about the size of a horse-bean, which was at once removed. Unfortunately, the poor fellow, whose health had been in a bad state previously, had an attack of erysipelas, and died. Of course I did not neglect to examine the knee-joint, and I have the notes of the dissection before me. The whole upper part of the tibia was increased in size from a deposit of bone on the surface. The cavity from which the dead bone had been extracted was of the size of a large cherry, and it had a smooth internal surface, the bone around it being somewhat harder than natural. From this a sinus extended to the knee-joint, and opened into it just at the anterior part of the spine of the tibia. There was no suppuration in the joint. The cartilage covering the head of the tibia in some places was perfect in its structure, but it existed only in narrow stripes; in other parts it had degenerated into a substance something like condensed cellular membrane; in others the only vestige of it was a kind of membrane—so thin that you could see the bone through it; and in other parts the surface of the tibia was completely exposed, but not carious. The bone of the tibia was more compact than under ordinary circumstances. It was curious that the condyles of the femur had suffered also, though in a different manner. The bone, instead of being harder, was softer than natural, so that you might cut it with a knife. The cartilage adhered imperfectly to the bone; it could be peeled off, and in some places had begun to ulcerate. The softening of the condyles of the tibia, I have no doubt, was the consequence, and not the cause, of the disease; for you will observe that all bones in a state of inaction lose a great part of their phosphate of lime. After compound fracture, when the patient has been long confined, the bones, in some instances,

actually become as soft as a scrofulous bone, so that you may cut them with a knife.

In the 'Dublin Medical Press' for December 3, 1845, there is an interesting account by Mr. Kirby of a case of chronic abscess of the tibia, which well explains the ravages produced by this disease if it be not relieved by art.

The three last cases show that it is not safe to leave an abscess in the extremity of the tibia beyond a certain time; that the joint is always in danger, and that the perforation of the bone is the only remedy. Even if you were mistaken in your diagnosis, no harm can arise from the operation. Nay, it is a question whether good may not arise, under certain circumstances, from taking away a piece of bone, where it is affected with chronic inflammation, even though there be no abscess. The following very remarkable case will illustrate this last observation. A young gentleman, who lived at Brixton, was brought to me by Mr. Crowdy, surgeon of that place, with violent pain in the middle of one arm, the bone itself being enlarged in the part to which the pain was referred. Some remedies were tried, which I need not enumerate, without any benefit. The pain continued, and I began to suspect that there might be an abscess in the centre of the bone. Under this impression I proposed cutting down upon it, and making an opening with the trephine, so that I might give exit to the matter, if there were any there. The operation was performed; the trephine penetrated to the centre of the bone, but no matter escaped. I persevered, but still there was no matter, and at last the instrument penetrated completely from

continued quite well. I presume that this was a case of chronic inflammation of the humerus, and that taking out the piece of bone from the centre, probably, partly by relieving the tension, and partly by a discharge of matter from the bone unloading the vessels, accounted for the relief which the patient obtained from the operation.

ILLUSTRATIONS OF SOME IMPORTANT CIRCUMSTANCES CONNECTED WITH OPERATIVE SURGERY.

There is no department of the healing art in which there is so much to interest or to excite both our own profession and the public, as there is in operative surgery. In the greater number of cases of disease treated by other means, it is difficult to say how much of the success obtained belongs to the remedies employed, and how much to the natural powers of the patient's constitution. But it is entirely different in those cases that are the subjects of operations. Recourse is had to this mode of treatment only when nature can go no further; and an operation, so far from being the direction of a natural process to a safe result, is, for the most part, an abrupt and rude interference with whatever nature is about. If a cure arise from an operation, it is to be attributed to that, and to that only: and thus it happens that some of the most splendid results obtained in the healing art are those which are claimed by the operating surgeon.

But an operation, while it may do good, may also be productive of evil. A man has a stone in the bladder; he is suffering torture; he has nothing but a frightful death to which he can look forward. As the least of two evils, he is contented to submit to the operation of lithotomy: and, it may be, that in the brief space of three minutes he is placed in a situation of perfect comfort, and that in forty-eight hours you are able to declare with confidence that his life is perfectly safe. A man may have a disease in the knee-joint, with carious bone and abscesses; he may be worn out by

pain, by perspirations, sleepless nights, and other symptoms of hectic fever. You amputate the limb; and even on that very night he may sleep soundly; there may be no more perspirations, and in a week he may be gaining flesh, and present the aspect of health. But then, on the other hand, there are other cases, in which the patient, after lithotomy, may die within forty-eight hours, although he might have lived—in misery, it is true—had he been let alone, for a year or longer. So, in the case of amputation for a diseased knee-joint, the patient, instead of recovering, may die in the course of a few days, and very much sooner than he would have done had not an operation been resorted to.

This double result of operations adds to the interest which this part of surgery possesses, and to the responsibility which is entailed on those who practise it. But what adds still more both to the one and to the other, is this—that it is not only great operations, such as lithotomy, and the amputation of the thigh, that are attended with risk. A man died in this hospital from the consequences of the sting of a bee; and another died, in this hospital also, from those of the bite of a leech. A patient died in consequence of a wound, not an inch in length, on the inside of the knee, made for the purpose of dividing the saphena vein. I have known a patient die from erysipelas that followed the simple operation of cupping; and there have been not a few instances of fatal venous inflammation supervening after a common bleeding in the arm. A lady had a small encysted tumour on her head not larger than a pea. A surgeon who was at that time (for what I am speaking of was many years ago) an eminent man in his profession, removed the tumour, but did it imperfectly. The disease returned, and another surgeon, at that time in large practice also, removed it more effectually. The patient died from erysipelas of the scalp. So others have died from the removal of piles, and other apparently trifling operations.

Considering these different results that are obtained in operative surgery, you cannot but feel how essential it is that you should

do everything that can be done to make yourselves master of whatever belongs to this part of your profession; that you should study the subject of each individual operation in its most minute circumstances; that you should be well acquainted with the anatomy of all the parts concerned in it; and that you should learn to be dexterous in the use of your knife, and of other instruments employed. You will also perceive that even these qualifications will not be in themselves sufficient. The surgeon who is engaged in operations must attend in all respects to his mode of life; and especially he should be of those moderate and temperate habits without which there can be no steady hand, no accurate eye; without which, also, there cannot be that activity and energy of mind, and readiness of conduct, which are so necessary to enable him to meet the unforeseen difficulties that will continually arise in the greater, and sometimes even in the smaller operations of surgery.

Some things to which you have to attend in an operation may be considered as special—belonging to that particular operation, and not to others. In operating for strangulated hernia, if you divide the stricture in one direction, you may wound the epigastric artery; while if you divide it in another, no such risk is incurred. In the operation of lithotomy, if you make your incision too extensive, you may cut through the whole of the prostate gland, and that is almost certain death to the patient. There are other things which belong to no operation in particular, but to operations generally, and it is to these last that I wish more particularly to direct your attention in the present lecture. You must not, however, lose sight either of the one or of the other if you would be accomplished operators.

An accomplished operator! That term may be used in various senses; but I will tell you, before I proceed further, in what sense I use it. I apply it, not to him who looks at his watch to see in how short a space of time an operation may be completed; nor to him who, during an operation, is putting himself in the situation of those who are looking on, considering what they will say, and

anxious to appear dexterous in their eyes. According to my notions, he only is an accomplished operator who, before he engages in an operation, looks at all the consequences, both good and bad, which may ensue; and earnestly endeavours to lay his plans so that there may be as great a chance as possible of the former being obtained, and of the latter being avoided; and who, while actually engaged in an operation, thinks neither of himself nor of the bystanders, nor allows any question to arise in his mind except as to what he should do to bring the case ultimately to a safe termination with the least possible distress to the patient.

Let me exhort you never to slur over a single case, nor proceed to the smallest operation, without having well considered what accidents may happen, what evil may follow, what degree of danger may ensue; and, having done so, let me advise you further, that you should, as far as you can, make the patient acquainted with all that you know upon the subject: or if he be not in a state in which he can judge for himself, then that you should make the same explanation to his friends. That you should do so is but an act of justice to your patient. It may be quite right for a man to run a risk by going through an operation, but it is not right that he should do so without knowing it, or at any rate not without his friends knowing it. But it is also an act of justice to yourselves. A surgeon has no business to take all the responsibility of an operation upon himself. The friends should never have the opportunity of turning round upon him afterwards, and saying, 'you said there was no danger, and here my wife, my husband, or my friend, is dead.' In some of the greater operations, indeed, there is not much explanation of this kind necessary, because the world very well know that where you perform lithotomy or amputate the thigh, there is a certain degree of hazard. But do not overlook the risk even of the smaller operations. If I am asked whether there be any danger, I never answer that there is none; I say, perhaps, what I have said to you just now, that I have known a person to die in consequence of the sting of

a bee, and the bite of a leech; but then I add, that the danger is so small that it is not to be put in comparison with that which will arise from allowing a disease to remain, which is itself a source of danger: or if the disease requiring the operation be one of no serious character, then I may observe, that the patient must decide for himself, whether it be not worth his while to incur a very small risk for the sake of the relief which the removal of the disease will give him. We must all be contented to incur such risks as these in many of the common concerns of life. You may go out on horseback, or on the top of a stage coach, and may be thrown off and killed; you may be smashed on a railroad, or drowned when on board a steam-vessel. As these very trifling hazards are to be overlooked under other circumstances, so they are to be disregarded in the smaller operations of surgery. State all this to the patient or his friends, in the way in which I have now stated it to yourselves. It will be a great comfort, and afford much peace of mind in the arduous profession in which you are engaged, if you attend to this advice. A man has a small tumour, and you remove it; the chance of mischief from the operation being not one in a thousand. But perhaps, you are performing small operations daily, and to you, therefore, the chance is multiplied. It is almost nothing to the patient, but it becomes much to you; and it is especially for your own advantage that even these small fractions of danger should never be concealed.

There is no greater source of danger, you may well suppose, in operative surgery, than hæmorrhage. A large flow of blood may kill the patient instantly. If operators were careless on this point, there would be no want of examples of death from hæmorrhage; and even in spite of all the care that may be taken, it happens sometimes that patients die from loss of blood, either at the time of operation or very soon afterwards. When I was house-surgeon to this hospital, a patient had bleeding after lithotomy which could not be stopped, and he died in a few hours. I performed the same operation on a private patient, in whom there was hæmorrhage from the large veins, apparently in the neighbourhood

of the neck of the bladder, which could not be stopped, and he also died in about a couple of hours. The danger from hæmorrhage is greatest in very early life. I have seen young children several times at the point of death from this cause. I accompanied an eminent surgeon, when I was young, to remove a nævus, or blood-vessel tumour from the back of a child's neck (at that time nobody ever thought of removing those tumours except by the knife). There was a good deal of bleeding at the time, but it appeared to have stopped. The child was put to bed, but in the course of a few minutes it was dead.

However, it certainly happens very rarely that patients die of hæmorrhage as an immediate result of an operation. Do not, however, think that hæmorrhage is of no consequence because it does not cause so frightful a catastrophe as this. The patient may survive a large hæmorrhage, and be very well the next day, and the day after that, but it may lay the foundation of mischief, such as I shall describe in another lecture, which destroys the patient ultimately. Nor is this all. The patient may recover from the operation, and the wound may be healed, and yet, where there has been a copious hæmorrhage, the constitution of a delicate person, more especially of delicate women, may be so much damaged by it, that it may not recover it for some years. After an operation I have sometimes heard a bystander say, 'Oh, he has lost no more blood than it will do him good to lose.' It is painful to me to hear such an observation as this: be assured that an operation cannot be performed with too little loss of blood. The loss of a few ounces in a patient who has a stone in the bladder, complicated with disease of the kidneys, will make all the difference between life and death: and so it is in many other cases. If it is desirable that the patient should lose blood, you can always take it from his arm, and just as much as is wanted, and no more. There can at any rate be no advantage from the loss of an uncertain quantity of blood in an operation. Some people seem to me to have a notion that the loss of blood in an operation will make the patient less liable to inflammation afterwards. But I believe that

it is just the reverse. Bleeding may relieve a phlegmonous inflammation where it already exists, but it does not prevent its existence; and on the other hand, I have no doubt that it increases the liability of the patient to other kinds of inflammation, such as erysipelas, or diffuse inflammation of the cellular membrane, or venous and arterial inflammation. Those asthenic inflammations, if I may use the expression, occur especially in those persons who have lost much blood. Let it be your object, therefore, in every operation, that it should be performed in such a manner that there should be as little waste of blood as possible.

And I should mention to you that even a large loss of blood before an operation may be productive of the most disastrous consequences afterwards. A man had a lacerated wound of the thigh, his limb having been caught in some mechanical engine. There was considerable bleeding. He became faint, and the bleeding stopped. He was brought into the hospital in a state approaching to collapse. There was a great deal of injury and it was evident that nothing could be done but to amputate the limb. The patient lay in bed waiting for what we call reaction to take place. By-and-by the pulse rose, and the wound began to bleed. The house-surgeon ran for a tourniquet, which unfortunately was not at hand, and before it could be procured the patient had lost an additional quantity of blood. We were then forced to wait till reaction took place a second time, and when it did so, the limb was amputated. The patient was taken back to bed pretty well at first; all at once he felt an irresistible impulse to make water, but could not do it. A catheter was introduced, but the bladder was found empty. In a few minutes he died. On examining the body we found the heart flaccid and empty of blood: the vena cava superior and inferior, and the vena azygos, vessels which are generally full of blood, were all empty. The only blood that could be found was in the aorta and its larger branches. The heart had sent forth into the vessels the last drop of blood contained in it, but there was not a sufficient quantity of blood going the round of the circulation to fill the heart again.

To avoid an unnecessary loss of blood in operations, it is of course indispensable that you should have a thorough anatomical knowledge of the parts concerned; but you are not dependent on yourselves alone. Whatever may be your own skill, it will be insufficient, if you are not provided with a good assistant. It is sometimes better, when an operation is likely to be tedious, to take up the bleeding vessels as you go on; as, for example, in the dissection of some tumours, and even in some cases of amputation, where the patient has no blood to spare. Sometimes, where there is a long-continued dissection, you will find great advantage from using a silver knife with as sharp an edge as can be given to this metal. The silver knife will divide the cellular membrane and smaller vessels, but it will not divide any vessel of considerable size. As it divides the cellular membrane it also stretches it, and elongates the vessels which are in it, and you know that vessel which are stretched before they are divided, bleed but little.

It is a great mistake (at least in my judgment) to perform amputation without a tourniquet. I know, indeed, that you may stop the flow of blood in the femoral or in any other large artery, by the pressure of a strong man's thumb; but by means of a tourniquet you may prevent the bleeding from the small vessels as well as the large ones, and I need explain no further why it should not be neglected.

There is another point, which it is always worth your while to consider before an operation. Has the patient any particular disposition to hæmorrhage? There are some families in which almost every individual is liable to bleed in the most alarming manner from the slightest cause,—in whom a pinch of the skin will cause an ecchymosis, and a wound with the point of a penknife will be followed by a serious hæmorrhage. Whether in these individuals the coats of the arteries are, as some have supposed, unusually thin, and incapable of contraction, or whether there be some peculiarity in the blood, so that it does not readily coagulate, I cannot say; but we know well the fact of the existence of persons who have this hæmorrhagic tendency, and in whom

operations are therefore more than usually dangerous. A man came to this hospital, many years ago, with a wound in his forehead, and he nearly bled to death. The flow of blood was stopped at last, not by tying particular vessels, but by a general pressure; but it returned: it was again stopped in the same manner, but it again returned, and it was not till a large slough had been made by caustic that the hæmorrhage was finally arrested. This man, when younger, had had a bad tooth, and he went to a dentist to have it drawn, but he very nearly bled to death. Some time after he had been at the hospital with his wound in the forehead, he had another bad tooth. At first he was afraid to have it drawn, remembering the danger to which he had been exposed, but at last his tooth-ache drove him to a dentist, by whom it was extracted. There was an abscess at the bottom of the tooth, which was in the upper jaw. A profuse hæmorrhage followed the operation. I was called in, two or three days afterwards, and he had been bleeding all the time. I tried various ways to plug the alveolus, and at last applied the cautery. I stopped the bleeding only for a short period, then it returned; and all other means having failed, I tied the carotid artery. This also was unsuccessful, and the bleeding went on, and ended fatally. This patient's child had the same hæmorrhagic tendency, and very nearly bled to death from the bite of a leech. There was a gentleman belonging to a family of which I have seen many members, all of whom have this singular disposition to hæmorrhage. Upwards of twenty years ago, he sent for me to see him. He had symptoms of stone in the bladder, one of which was a most prodigious discharge of pure blood from that viscus. A surgeon whom he had consulted previously had declared him to have a fungus hæmatodes of the bladder. I examined him, and found a stone. I recommended that he should go through the operation of lithotomy, but he said that he should bleed to death; and a circumstance had occurred, since I first saw him, that seemed confirmatory of his opinion. He had been cupped in the perineum, and the wounds made by the scarificators had bled profusely every other day for nearly

three weeks. Having seen a good deal of him, I partook of his fears, and was rather glad to avoid the operation. By-and-by he sent for another surgeon, who was in very large practice, and certainly had much more knowledge than I at that time possessed. He sounded him, found the stone, and said he had better be cut for it. 'Oh!' said the patient, 'I shall bleed to death.' The surgeon, not being rightly informed on the subject, rather laughed at this; the operation was performed, frightful bleeding followed, which went on for twenty-four hours, and then the patient died.

There is another cause of fatal results at the time of, or immediately after, an operation; namely, the severe shock which under certain circumstances it may occasion to the nervous system. Sir Everard Home, in the instructive lectures which he formerly gave in this hospital, was accustomed to mention the case of a man who had a diseased testicle. He was placed on the table to go through the operation of castration. The removal of the testicle is a very simple process; there is no bleeding but what is under command, and there was no bleeding here: but when the testicle was removed, they looked at the man, and he was dead. When I was a student in this hospital, there was a man with a large stone in the bladder. Sir Everard Home, who was a dexterous lithotomist, performed the usual operation. The stone broke to pieces, and that at first seemed to be rather a good thing than otherwise, for it is better to take out a very large stone piecemeal, than to drag it out entire. But this occupied a long period of time, there being a deep perineum, and a great number of fragments. The operation, I believe, lasted a whole hour; then the man was taken back to the ward, but he was dead before he was in bed. This was probably nothing but the effect produced on the nervous system by a long, painful, and anxious operation, upon a healthy subject; and for such a contingency as this you cannot in all cases be prepared. But you may be prepared for it in some cases by well considering the condition of the patient before you undertake the operation.

Suppose, for example, a man to have disease of the heart, with

symptoms indicating ossification of the coronary arteries, that is, symptoms of angina pectoris; he will be much more likely to die from the shock of an operation than another patient; and therefore in him everything but the smallest operation should be avoided.

In the early part of my professional life, I was present at an operation of lithotomy performed on a patient who had many urgent symptoms of stone in the bladder: the urine was full of bloody mucus, offensive to the smell, and tinged with blood. The suffering which the disease occasioned was almost beyond imagination; but still it was a case in which, notwithstanding the greatness of the suffering, no surgeon with the knowledge we now possess would venture on an operation. This class of diseases was not so well understood at that time as it is at present; and two of the most distinguished surgeons of the day agreed in recommending lithotomy. The operation was performed; it did not last three minutes, and there was scarcely any hæmorrhage. The patient was taken off the table, but he was dead before he had been three minutes in bed. On examining the body, the prostate gland was found extensively ulcerated; and it seemed that the passing of the instruments over the ulcerated gland had produced the impression on the nervous system that proved thus instantly fatal. I witnessed another operation performed under exactly the same circumstances; except that there were several stones, and, therefore, that it was not so soon over. Before the patient was taken back to bed he was in a state of perfect coma, with stertorous breathing. In this condition he remained for some hours, and then died. A man was in the hospital with stone in the bladder, under the care of Mr. Ewbank: there was a consultation on the case, the question being whether the patient should undergo the operation or not. The symptoms were exactly similar to those which occurred in the two last-mentioned patients; and on the circumstances being stated to him, Mr. Ewbank at once gave up all thoughts of the operation. It was well that he did so; for on the following day the man died, and an extensive

ulceration of the prostate, with disease of the bladder, was discovered on dissection.

Of course you may do a great deal towards preventing such a catastrophe, by looking thoroughly into the case at first, and it will indeed rarely happen that you may not anticipate and avoid the danger. Still such a case may occur as that of a patient suffering in an unusual degree from the impression which the operation makes on his nervous system, and in which, by the proper and timely exhibition of stimulants, the system may be supported under it, and the patient's life preserved.

In the preceding lecture, I explained to you some of the ill consequences of operations, which are met with either at the time of their being performed, or immediately afterwards. In the present lecture, I mean to draw your attention to some other sources of danger, the results of which are not rendered manifest until a later period.

The effect of any local injury depends, 1st, on the nature and extent of the injury itself; and 2ndly, on the condition of the individual at the time of the injury being inflicted. In one state of constitution, the slightest and simplest wound may produce ill consequences, which even the largest and more complicated wound would not produce in another; and it is the duty of the surgeon, before he has recourse to an operation, to study the causes of this difference, and to make himself acquainted with the circumstances on which its success or failure may depend. Evils which are anticipated may often be prevented, and at all events, it is always worth while to know what are the evils which may probably or possibly arise, in order that you may determine how far you are or are not justified in encountering them.

An operation may be followed by severe phlegmonous inflammation. You may remove a loose cartilage from the knee-joint, and in the course of forty-eight hours the synovial membrane of

the joint may be distended with synovia, with great pain in the part, and symptomatic inflammatory fever; or there may be a similar phlegmonous inflammation of the stump after amputation of the thigh, ending, if it be not checked by art, in suppuration and abscesses on the surface of the bone, destruction of the periosteum, and death of the bone itself to a greater or less extent. In such cases it may be necessary to have recourse to what is commonly called antiphlogistic treatment, to take blood from the arm, to give purgatives and diaphoretics, and even to subject the patient to the influence of mercury. It is impossible to say, in all cases, whether it be or be not probable that symptoms of this kind will show themselves, but you may, nevertheless, be justified in expecting them in many instances. A person of plethoric habit, of good constitution, who has been living rather freely, without actual intemperance, is the individual in whom such inflammatory symptoms most frequently appear. You may especially distrust a patient, whose urine is unusually loaded with lithic acid, whether it be a clear high-coloured secretion, depositing red or brown crystals of lithic acid, or whether it becomes turbid on cooling, having a red sediment, composed chiefly of the lithate of ammonia, and staining the bottom of the vessel which contains it, so that it resembles in appearance what they call a pink saucer. The secretion of the kidneys, where it habitually exhibits the appearance which I have just described, always indicates an inflammatory condition of the system. The individual thus affected, is in a situation which may be compared to that of a man who has a sword suspended over his head by a thread which may break, so as to put his life in jeopardy at any moment. You must not be surprised, if he be suddenly, and when he supposes himself to be in the best possible health, seized with inflammation of the pleura, or of the knee, or with a brain fever, and you may be assured he is so unfavourable a subject for an operation, that no operation ought to be had recourse to, except as a matter of absolute necessity, and with a view to avoid some very great and pressing danger. Under any circumstances, let the operation be

postponed until, by a regulated diet, by exercise taken daily, not to an immoderate extent, but yet so as to induce a free perspiration, by the exhibition of purgatives, and perhaps of small doses of the alkalies, you have brought the patient into a better state of health.

But the dangerous inflammations which occur after operations have, for the most part, an entirely different character from that of which I have just spoken. They are low asthenic inflammations, connected with a depressed state of the general system, and requiring a very different treatment from what is required in cases of active phlegmonous inflammations. Of these the most common is that which assumes the form of an exanthematous disease, and which we call erysipelas.

There is no greater source of danger to patients after operation than this; nor is there any more abundant cause for mortification to the surgeon, showing itself as it does, not only after the most severe and complicated operations, but after those that are regarded the most trifling; not only after lithotomy, or an amputation of the thigh, but after the removal of an encysted tumour from the scalp, or the division of the prepuce on account of a phimosis, or the laying open of the smallest sinus in the groin, or near the rectum. Perhaps the wound made in the operation is healing favourably, and you suppose that your labours are brought to a prosperous termination, when some day, on visiting your patient, you find that he has had a rigor followed by fever, and at the end of twenty-four hours you find him labouring under erysipelas, which endangers his life, and keeps your mind in a state of suspense for the next fortnight.

It would be foreign to my present purpose to give you a history of erysipelas, or to direct the treatment which it requires. My object is merely to explain the peculiar circumstances under which it commonly arises, and to consider the means of prevention.

It has been supposed by some, that erysipelas is contagious, and that it is from this cause that you find it prevail to so great an extent at particular periods in hospitals all over the world.

But you must be aware how difficult it is to distinguish between diseases which are communicated from one person to another, and those which affect many individuals about the same time, because they happen to be placed under similar circumstances, and are subjected to the same external influences. Now it has been my lot to live, during nearly the whole of my professional career, where I had abundant opportunities of watching the origin, progress, and termination of this terrible malady, and the result is that I am led to believe that it is not really contagious. Exposure to cold and damp, and especially to the influence of these two causes acting in combination with each other, may be the immediate exciting cause; but, if I am not greatly mistaken, it may in nine cases out of ten be traced to a still higher source than this, namely, to a depressed and debilitated condition of the patient's constitution. The depressing effects of the cold north-eastern wind, which in this country prevails, on an average, for nearly three months between winter and summer, are felt and acknowledged by all, and erysipelas is never more prevalent than it is just at this period of the year. We may in the same manner explain the frequent occurrence of it during a season of extreme cold in winter, or of intense heat in summer. Then you may observe that it occurs especially after operations in which the patient has lost an unusual quantity of blood, and in those who either before or after the operation have been kept on a very low system of diet. We cannot regulate the winds of the spring months, nor the heat of the summer, nor the cold of winter, but we may, I am satisfied, do a very great deal towards counteracting their influence and lessening the danger of erysipelas, by using every possible precaution against an abundant hæmorrhage, by the prudent and judicious administration of nourishment, and by a cautious exhibition of such stimulants as wine and beer to those who are accustomed to them when in health. I was educated in the belief that the thing to be most apprehended after an operation was some kind of inflammation; and that the way to prevent inflammation, was to keep the patient on low diet, and as

long as I acted in accordance with these views, I was meeting with erysipelas at every turn of my practice. Many years have now elapsed since I became convinced that these doctrines are erroneous: that an operation is a shock to the system, making a great demand on the vital powers: that the effects of this shock are often much aggravated by loss of blood: that a very scanty diet actually makes the patient more liable to certain kinds of inflammation than he would be otherwise; and that our rule of practice ought to be rather to sustain his powers by allowing him wholesome nourishment, and not to add to the influence of other depressing causes that still worse one of starvation. I assure you, and I assert it most positively, that if you attend to the rule which I have just laid down, although you may not prevent erysipelas altogether, you will find it to be a rare instead of common occurrence; and I can scarcely express to you how much greater has been the comfort of my life, and how much less cause I have had for professional anxiety, since I altered my mode of practice, than was the case formerly.

Let me not, however, be misunderstood as recommending that the subjects of operations are to be crammed with animal food, or that wine and porter and brandy are to be freely and indiscriminately administered. As I have already explained to you, there are some individuals who require to be placed on a more moderate system of diet than that to which they have lately been accustomed, to prepare them for an operation; and in the majority of cases, food should be given cautiously for the first day or two after the operation has been performed, and under all circumstances it will be necessary for the surgeon to watch the present symptoms, to make himself acquainted with the patient's previous habits, and to be careful not to administer either animal food or stimulants in such quantity as to excite the pulse, or increase the heat of the skin; or to load the stomach with that which it cannot easily digest. It is dangerous to keep a patient very low who has been accustomed to a very full diet; and it is also dangerous all at once to supply a very full diet to one who has been accustomed

to a very scanty fare. An individual who has been in the habit of drinking nothing but water, will require wine and porter and brandy only in a very small quantity, or on extraordinary occasions; while another, who is habituated to the use of such stimulants, cannot be deprived of them more than a very few days, without suffering materially from the privation. I have often in this hospital found it expedient to give a gin-drinker a moderate quantity of gin even on the day immediately following some operation or dangerous accident.

Another inflammatory affection which sometimes arises as the consequence of an operation, has its seat in the veins which have been tied or divided. This occurs under circumstances very similar to those under which we meet with erysipelas; beginning some days after the operation was performed, and being frequently ushered in by a rigor, but being a more formidable disease than erysipelas, inasmuch as it attacks more important organs, and as it generally terminates in suppuration, and in a collection of pus in the cavity of the inflamed vessel. This disease when once begun is little under the dominion of remedies, but much may be done towards preventing its existence; and all the experience which I have had on the subject would lead me to believe that, like erysipelas, it has its origin in a low asthenic state of the system, and that those persons are especially liable to it who have been much lowered by hæmorrhage at the time of the operation, or by a too scanty diet before or afterwards. Arterial, in some instances, accompanies venous inflammation, and it is to be attributed to the operation of the same predisposing causes.

Another source of mischief after operation is what may be called *gangrenous inflammation*; that is, an inflammation which proceeds almost immediately to a termination in gangrene and sloughing.

This assumes a somewhat different form in different cases.

A large gross fat man, who had been much addicted to drinking spirits, was admitted into this hospital, when I was assistant-surgeon, with an enormous irreducible inguinal hernia in a state

of strangulation. I divided the stricture, which was in the external abdominal ring, and did nothing more. The bowels acted freely afterwards, but on the third day the skin in the neighbourhood of the wound was inflamed, and, in some places, there were vesications on its surface. The inflammation extended rapidly to the rest of the integuments of the abdomen, and in two days more the whole of them were in a state of mortification. The patient died.

You meet with the same disease, though not exactly in the same shape, in what is commonly called 'a sloughing stump' after amputation. The stump inflames, and becomes swollen, painful and tender. You are compelled to loosen the bandages. A dirty serous discharge exudes through the dressings. After four or five days you remove the plasters and find not only that there is no attempt at union, but that the whole of the cut surfaces are in a state of gangrene. Sloughs become separated, but others are formed, and thus a rapid destruction of the soft parts takes place, leaving the bone projecting, deprived of periosteum, and dead in the centre.

In another case a diffuse inflammation extends along the cellular membrane producing an effusion of serum and ill-formed pus. At first the surface of the skin has only a dingy reddish hue; but the cellular membrane underneath has lost its vitality. Mortification of the skin follows in patches, and often takes place to a great extent. Sometimes the progress of these frightful changes is rapid, the whole of a limb being involved in them, and the patient sinking, from the impression which they have made on his system, in the course of five or six days. At other times the progress is comparatively slow, and a fortnight may elapse before the fate of the patient, as to life or death, is finally determined.

But whatever may be the exact character which the gangrenous inflammation assumes, you may be assured that it is always an indication of a low and depressed state of the patient's constitution. According to my experience, it occurs especially in those who have been habitually intemperate, indulging in the free use of spirituous or strong fermented liquors. In persons of such habits

it is always prudent for you to avoid the performance of an operation, except it be a matter of absolute necessity. If that necessity should exist, and symptoms of gangrenous inflammation should ensue, bear in mind that to treat it by blood-letting, and what are commonly called antiphlogistic remedies, is, for the most part, the way to make it more rapid in its progress, and more destructive. A treatment the direct opposite of this is what is really required; and with a view to prevention, the safest thing to do, in the case of a person of intemperate habits, is to allow him a certain quantity of his accustomed stimulus from the beginning, that is, even from the day of the operation.

But it is not in drinkers of spirituous and fermented liquors alone that we meet with this kind of inflammation. Persons of a broken constitution from other causes are liable to it also. Dr. Prout has observed that those who labour under diabetes are affected with carbuncle in a great number of instances. A gentleman labouring under diabetes received an accidental wound on one side of his head. Within a week he was dead, a victim to extensive inflammation and sloughing of the scalp. If he had been in health, such a wound as he received would have been of no consequence; but in the state in which he was, the removal of a small encysted tumour from his scalp would have been equally fatal. I have had the misfortune of losing three patients out of the great number on whom, in the course of the last thirty years, I have performed the operation of applying a ligature to internal piles. In each of these cases, on examination after death, I found diffuse inflammation and a sloughy condition of the cellular membrane between the mucous membrane of the intestine and muscular tunic, and also externally to the muscular tunic as high as the mesentery, and even between its layers. In one of them there was a diseased condition of the kidney, and the urine, which was carefully examined by Dr. Prout, was found to be loaded with albumen, and of a very high specific gravity (1·035). In the second there was a diseased condition of the kidneys also. The urine unfortunately was not examined, but you will know pretty

is protracted; and before he dies, the patient suffers from swelling, inflammation, suppuration, and sloughing of the parotid glands; or there is a purulent deposit in each of the knee-joints. In other cases there are deposits of pus in the cellular membranes, or of serum, lymph, and pus, in the peritoneum or pleuræ.

Now it has been supposed by some that, in these cases, the secondary disease is always connected with venous inflammation, and that the circumstance may be explained by supposing that pus secreted by the inner surface of the veins is carried into the torrent of the circulation, and afterwards deposited, even without any inflammatory process, in some other and distant organ. I cannot, however, believe that this is the true theory of the disease. In a case of compound fracture of the right leg, in which the patient died at the end of a month with deposits of pus in the lungs and liver, and in the cellular membrane over the abdominal muscles, and near the left (or opposite) groin, the veins were most carefully examined everywhere, but no venous inflammation could be detected. In another man, who died after a surgeon had most injudiciously applied the caustic potash to the skin over the occiput, so as to make a slough of all the soft parts, and expose the bone itself, I had the opportunity of examining the body after death, and found the dura mater detached from the inside of the bone to the same extent as the destruction of the pericranium had taken place on the outside; and no trace either of venous inflammation in the injured part, or of suppuration on the surface of the dura mater; while the peritoneum was universally inflamed, and the intestines were agglutinated to each other by coagulated lymph. I might, if it were necessary, produce a great number of similar examples; but these are quite sufficient for my present purpose. Having now watched the progress of a great number of cases of this description, I am led to believe that these secondary inflammations are to be attributed not to the entrance of pus into the vessels, and the transfer of it when secreted in one part through the medium of the circulation to some other part of the body, but to the long continuance of a low febrile excitement of the

A young woman had a small scirrhous tumour removed from her neck. On that very evening she had a rigor. On the following morning there was well-marked erysipelas of the skin of the neck, extending downwards over the whole of the anterior part of the chest. No proper reaction had taken place after the rigor; the pulse was small and weak, and the extremities were cold. In a few hours the whole of the skin affected by the erysipelas was in a state of mortification; and in less than forty-eight hours from the time of the operation the patient was no more. A poor girl, who came from the country to be admitted into St. George's Hospital, on her journey, had the skin of one breast slightly chafed by the whalebone of her stays. On the following morning she had a severe rigor, from the effects of which she never completely recovered. Erysipelas supervened, beginning where the skin had been chafed, and extending rapidly over the whole of the forepart of the chest. The skin thus affected became almost immediately gangrenous, and she died with it in a state of complete mortification in the course of three or four days from the commencement of the attack. Both of these cases occurred in the summer, when the heat was most unusually intense; and they taught me a lesson which I have never forgotten—namely, that operations which are not of an immediate necessity should not be performed when the temperature of the atmosphere is very much above the ordinary standard.

There is still another class of inflammatory affections to which the attention of our profession has of late years been much directed, consequent on accidental injuries, and on surgical operations, which I must not pass over unnoticed. The seat of these inflammations is not in the part which has been injured, or which has been the subject of the operation, but at a distance from it. A man has an injury of the head, and, when he dies some time afterwards, you find deposits of pus in the lungs, or abscesses of the liver. In another case there are symptoms of cellular inflammation and suppuration about the neck of the bladder after lithotomy; but death does not take place immediately: the case

is protracted; and before he dies, the patient suffers from swelling, inflammation, suppuration, and sloughing of the parotid glands; or there is a purulent deposit in each of the knee-joints. In other cases there are deposits of pus in the cellular membranes, or of serum, lymph, and pus, in the peritoneum or pleuræ.

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system. However that may be, these cases are replete with danger. The rule is, that they terminate fatally; and the exceptions to this rule are very rare.

Still such exceptions exist, and every now and then you will find the secondary inflammation to subside without going on to the deposit of pus. One such case is probably in the recollection of some of those whom I now address. It was that of the last patient (George Bean), in whom I tied the external iliac artery before I resigned my office as surgeon to the hospital. On the evening after the operation, the whole of the abdomen became painful and tender; the pulse was frequent; the skin hot; the tongue dry and brown. Some blood was taken from the arm. On the following day, as the symptoms continued, Mr. Cutler, in my absence, repeated the blood-letting. On the second day after the operation, the symptoms being not at all relieved, I destroyed the adhesion of the edges of the wound with a probe, and gave exit to some sanious matter collected within. Finding that the man had been a dram-drinker, instead of having recourse to further depletion, I now ordered him some medicine containing ammonia, and a small quantity of wine, with some beef-tea, &c. On the following (that is, the third) day, none of the local symptoms were relieved, and the constitutional symptoms were much aggravated; and in addition to that which had existed previously, there was a most intense pain, with swelling and tenderness in the right shoulder (that is, the shoulder on the opposite side to that on which the artery had been tied). I now left off all medicine, and prescribed half a pint of red wine to be taken daily, with such nutriment as the stomach would receive. The pain in the shoulder, with some degree of swelling, continued for a considerable time; but on the quantity of stimulus being further increased, this, as well as the other symptoms, gradually subsided, and the patient ultimately recovered. I am induced to mention to you briefly the principal circumstances of this case, because, as they were instructive to myself, so I hope that they may be not uninstructive to you. They show that a secondary inflammation, such as might be

expected in the common course of things to proceed to a purulent deposit, may, in some instances, be made to terminate in resolution. They furnish also an example of a low inflammatory affection in a person accustomed to the use of spirits, being relieved, not by bleeding, antimonials and purgatives, but by a directly opposite method of treatment; namely, the prudent exhibition of stimulants and nourishment: thus confirming the observations which I have already made on this important point in surgical practice.

Besides the various sources of danger after operations to which I have just called your attention, and which are all connected with inflammatory action, there are others not less important which are connected with derangement of the function of the nervous system.

As a wound made accidentally may be followed at the expiration of ten days or a fortnight by symptoms of tetanus, so that made by the hand of the surgeon may produce the same unfortunate result. You must not, however (in this climate, at least), allow the apprehension of this terrible disease to enter into your calculation. It is just as probable that it will occur after the most trifling operations, such as you perform daily, as after those which are most difficult and complicated; and the chance of this occurrence after either the one or the other is so very small, that for all practical purposes you may regard it as none at all. If you were to take account of such small chances as this, you would not take a journey on horseback for fear of being thrown off your horse and killed; nor would you venture to travel in a mail-coach, or in a railroad-carriage. Besides, we have no such knowledge as will enable us to say in what particular case it is most probable that tetanus will occur, or how it is to be avoided or prevented.

You have heard of, and most of you have witnessed, a disturbed state of the nervous system which sometimes follows local injuries, and to which M. Dupuytren has given the name of traumatic delirium, though that of traumatic mania would be a more

appropriate appellation. This disease may follow the injury done by an operation as well as that which arises from an accident. The case is always replete with danger, and not unfrequently, even in spite of the most judicious treatment, the termination of it is fatal. It is not my intention to occupy your time by giving an exact history of the symptoms and progress of the disease; these being, I doubt not, well described in the systematic course of lectures delivered in this theatre by Mr. Cæsar Hawkins. It is sufficient for my present purpose that I should observe that the symptoms vary somewhat in different cases, and that the degree of danger varies also.

Now, according to my observations, the cases in which this disturbed state of the nervous system follows accidental injuries and operations in the London hospitals, are chiefly those of individuals who have habitually indulged too much in the use of fermented and spirituous liquors, and especially of dram-drinkers; and in the majority of these cases, the symptoms immediately follow the sudden abstraction of the accustomed stimulus. A man who has been accustomed to drink his bottle of wine daily, with the addition, perhaps, of some porter at his dinner, or to swallow daily one or two pints of gin or brandy, should, after an operation (unless there be some very potent reason against it), be at once allowed a moderate proportion of his usual liquor, and, perhaps, a still larger quantity afterwards: or if attention has not been paid to this in the first instance, and the symptoms of traumatic mania have begun to show themselves, wine, or gin, or brandy, with the addition of the acetate or muriate of morphia, should be immediately exhibited with a view to arrest its progress. In some few cases of persons whose habits have predisposed them to this disease, there may perhaps be inflammatory symptoms of such a nature as to justify or demand the use of the lancet, and other methods of depletion, in the first instance. This treatment, however, will only make the patient more liable to traumatic mania afterwards, and his life will certainly be sacrificed unless you exercise a sound judgment in choosing the exact moment of

time in which you shall alter your treatment, and substitute the cautious exhibition of stimuli and opiates for that which you had employed previously.

Nervous symptoms, which are essentially, though not in all minute particulars, of the same character as those which arise in persons who have been too much addicted to strong potations, may arise under other circumstances. In the museum of this hospital you will find the lower portion of a tibia divided longitudinally, and exhibiting the cavity of an abscess in the cancellous structure immediately above the ankle. I shall give you briefly the history of this case, as it will serve to illustrate our present inquiry, and is of much interest. The patient was a young man about 24 years of age, and he consulted me rather more than eighteen years ago under the following circumstances. He had an enlargement of the lower extremity of the right tibia, with pain, which was constant, and at all times severe; but he was subject to paroxysms, in which his sufferings were described as being most excruciating. These paroxysms recurred at irregular intervals, confining him to his room for many successive days, and being attended with considerable constitutional disturbance. He had consulted many surgeons, without deriving any advantage from their advice. The remedies which I prescribed were of no more avail than those which he had taken before; and when I proposed to him that he should lose his limb, he gladly consented to the operation. The preparation to which I have referred you sufficiently explains the nature of the disease; but the termination of the case is that which is most to our present purpose. The patient bore the operation with the utmost fortitude, so that a bystander could not have supposed that he suffered the smallest pain. Immediately afterwards, however, he became restless and irritable, and too much disposed to talk. Unfortunately, in the evening there was hæmorrhage from the stump, which ceased on the removal of the dressings and coagula, though not until a considerable quantity of blood had been lost. During the night he had no sleep, and on the following morning he was restless

and incessantly talking, with a rapid pulse. The symptoms became aggravated. There was no disposition to sleep, and the pulse became so rapid that it could be scarcely counted. Until the third or fourth day the tongue remained clean and moist; and afterwards it became dry and somewhat brown. There was constant delirium. The pupils were widely dilated; and the sensibility of the retina was so completely destroyed, that the glare of a candle was not perceptible, even when held close to the eye. Death took place on the fifth day after the operation. No morbid appearances were detected in the *post-mortem* examination.

There can be no doubt that the immediate cause of this patient's death was a disturbed state of the nervous system consequent on the shock of the operation, but probably aggravated by the secondary hæmorrhage afterwards; and it is reasonable to suppose that the state of constant misery and excitement in which he had lived for many years, and which, as I was informed, had rendered his temper unusually irritable and capricious, made him more liable to be thus affected than he would have been otherwise.

In other cases, a corresponding predisposition may be traced to an originally imperfect construction of the nervous system, showing itself, as the patient attains the age of puberty, in the form of aggravated hysteria; or perhaps, at a more advanced period of life, in that of mental derangement. I have seen several remarkable cases of severe nervous symptoms following even small operations in the former class of patients. The history of such cases would of itself occupy a lecture, and it is sufficient for my present purpose that I should call your attention to them, and that I should state, as the result of my experience, that those who labour under the disease of the nervous system are among the most unfavourable subjects for all kinds of operation. Even in the case of a young woman who is more than commonly hysterical, I advise you to proceed with caution. Her powers of life are weak; she will ill bear any considerable hæmorrhage; and she is more liable than others not only to a dangerous disturbance of the nervous system, but also to those low inflammatory affections

consequent on operations, of which I have spoken formerly. I do not say that you are never to recommend an operation to persons of this description; but I am satisfied that you ought to have a very sufficient reason for doing so; and I advise you, if an operation be determined on, to make every possible provision against much loss of blood; and to endeavour to sustain the powers of the system by the careful administration of nourishment, and even of stimuli afterwards.

I need scarcely tell you, that, as a general rule, the existence of organic disease in any organ that is concerned in the vital functions should be regarded as a great objection to a surgical operation. To perform the operation of lithotomy where the existence of a stone in the bladder is complicated with disease in the kidney, is almost a sure method of shortening the patient's life. To lay open a fistula of the rectum where there is also disease of the lungs, will probably cause the tubercles and vomicæ of the latter to become more rapidly developed. Nothing but the more pressing necessity can justify an operation under such circumstances. Still, such necessity may exist; and when it does exist, you are not to shrink from the responsibility of doing what is required. You may be called to a patient who has an aneurism in the popliteal artery and in the aorta at the same time. To tie the artery in the thigh, where such a complication exists, and where there is nothing in the state of the popliteal aneurism to cause immediate danger, would be madness; but to hesitate to do so, if it were on the point of bursting, would be cowardly and cruel.

Gentlemen, in thus describing to you the various sources of danger after surgical operations, my object has been not to diminish, but to increase your confidence in operative surgery. The surgeon who goes blindly on, not looking at the evils which may probably or possibly ensue, is a mischievous member of society; while he who proceeds with circumspection, and makes it his business to learn what those evils are, will know how to avoid them, and although he cannot always command success,

still it will be only on some comparatively rare occasions that he will experience the bitter disappointment of finding that the efforts which he has made for his patient's good have turned out to his disadvantage.

INFLAMMATION OF THE VEINS.

INFLAMMATION of the veins is a very common disease, and was not much noticed till within the last forty or fifty years; but of late it has been the subject of very general investigation. One description will not apply to all cases, as it occurs under various circumstances, arises from various causes, is attended by different symptoms, leads to different results, requires, of course, different treatment, and has the additional characteristic of sometimes being not at all dangerous, and at other times extremely so. Let us, then, take the disease in its simplest form, for all diseases should be thus studied. I address this observation more particularly to those gentlemen who are just commencing their studies; I recommend them to study the simpler forms of disease first, namely, those cases which more advanced students look upon as of trifling importance, for, by thoroughly understanding these, you will be enabled more readily to comprehend those more difficult cases which you will meet with afterwards. Suppose, then, a man has varicose veins of the leg; he takes too much exercise; you therefore rest him; you also purge him, and bathe the parts with cold lotions. The pain probably soon ceases, and very slight constitutional disturbance results. Now, if from any cause this man should die, and an opportunity occurs for examining the body, you will find the veins which, during life, felt hard and like cords beneath the finger, filled with lymph, so as entirely to have obliterated their cavities. This form of the disease is not dangerous; it seldom leads to any bad result. Then there are cases where inflammation of a larger vein takes place, independently of wounds or mechanical injury, and these also are not generally dangerous. Let us suppose an ordinary case. A man takes too

much exercise, or is exposed to cold; he gets a sense of weight and pain in the groin, extending down throughout the whole of the limb; there is tenderness along the course of the veins during the day; no constitutional disturbance; pulse a little quickened, but the symptoms not urgent; then, after a time, the calf of the leg swells, soon the whole of the leg swells—it is an elastic swelling, and is sometimes sufficient to make the leg double its natural size. These symptoms continue for a length of time, and then, either with or without treatment, begin to subside; and first, perhaps, the pain ceases, the swelling remaining; then, perhaps, the size diminishes, but not to the natural proportions, and sometimes the leg and ankle remain subject to swelling the remainder of the patient's life. Sometimes the swelling subsides every morning, but returns in the afternoon; here, again, there will be pain in the limb and tenderness in the course of the veins. In this case you will feel the vena saphena and the femoral vein like a cord in the groin, and you will be sure that this is the result of inflammation; but it will not be acute, and generally not attended with danger; but if it becomes more acute, and goes on to suppuration, then it is dangerous; and a particular feature of these last cases is the swelling of the thigh, leg, and foot. You may perhaps ask, why does venous inflammation produce this swelling? The reason is plain. The cavity of the vein becomes filled with lymph, the blood cannot pass back to the heart, and then, having to find its way by some circuitous route, it becomes collected in the veins below, and the serous portion escapes, I suppose, by lateral apertures in the capillary vessels, and in this way produces the ede-

case after death, resulting from acute inflammation of the veins, you will find the veins filled with coagulated blood mixed with lymph, and I am disposed to believe that, when the coats of the veins become inflamed, they give the blood contained in them a tendency to coagulate. It is not the disposition of blood when effused to coagulate; for we know that it may be effused into the tunica vaginalis, and remain there a long time without its being coagulated. You have another familiar example of this in the leech, in which the blood does not coagulate; but when it is out of the body, stir it as you will, it will coagulate. When inflammation of the veins runs very high, it becomes a dangerous complaint. It was the practice of Sir Everard Home to put a ligature on the vena saphena in these cases, but its effect was the production of increased inflammation. Mr. Abernethy recommended cutting the vein in two, and I being at that time much less experienced than I may claim to be now, tried his plan, but to my dismay, in a few days the man was dead, with violent inflammation of the veins. The example, therefore, is not one to be followed.

I shall now describe to you some of the *morbid appearances.* These are different according to the period at which the patient dies; sometimes you find a red blush on the inner surface of the vein, and nothing more, this perhaps extending upwards towards the heart, and also downwards towards the capillaries, sometimes even to a greater extent in the latter direction than towards the heart; I do not by this mean that it runs a greater distance, but that it runs along a greater number of branches, because when it ascends, it confines itself to the trunk, and does not enter the branches. In these cases it looks like a red stain, with a very little lymph effused on its surface; and with nothing more than this I have known the patient to die in a few days. But if he does not die other changes take place. You find the blood coagulating in the veins (I say coagulating, for there is fibrine mixed with colouring matter), but this coagulum is evidently mixed with blood which has been effused, and sometimes you find a portion broken down, dissolved, and looking like pus, although I

have not satisfied myself that this is pure pus. I have seen coagulum in the two ventricles mixed with this liquid-like pus, but it will not stand the test of a close examination, although it resembles the pus found in an aneurismal sac. If, however, the disease is allowed to go on, pure pus is formed, but then the vein becomes totally obliterated below, and the 'vis a tergo' is wanting. In the greater number of cases where lymph is effused into the cavity of a vein, you will find pus secreted on the side nearest the heart; and although the pus at first puts on a doubtful appearance, if it goes on, there will be actual, pure, genuine pus, unmixed with anything else; and then another portion of coagulable lymph will be effused between the pus and the heart, thus forming a complete barrier to its further progress. This second layer of lymph, however, is not unfrequently wanting; but even then, it does not follow that the pus shall mount up to the heart; for you will remember there is an obstruction also formed by the effusion of lymph previous to the formation of pus; so that the 'vis a tergo' to force it forwards is wanting, and in this case it will form a regular abscess in the vein. The vein may be filled with pus for two or three inches of its length, or pus and lymph, pus and coagulum, or all three mixed together. If this remain, you have suppuration taking place, and then you get, secondly, abscess round the vein, which is entirely destroyed; so that, if the patient dies, you find merely very indistinct remains of it on examination. This abscess will soon make its way under the skin, and present itself externally. These, then, are the principal morbid appearances which present themselves after the inflammation of a vein. There are some others of minor importance, but these I shall dismiss for the present.

I come now to speak of the *symptoms of venous inflammation.* Now, let us suppose there has been a wound in the vena saphena, or in the groin; the patient has violent headache; shivering, the pulse very quick; tongue dry; next day the pulse so rapid that you cannot count it; another attack of shivering and intense headache; great agitation of manner; and an expression of anxiety in the countenance; the tongue will get black, as if he were in the

last stage of typhus, and probably the next day the patient will die. This is not an overdrawn picture, for I have known several cases run this rapid course. But you will also find tenderness above and below the wound, the skin being so tender that the patient cannot bear it to be touched, and yet the pain will be relieved by putting on a flannel bandage, because it prevents the inflamed veins becoming distended. If the symptoms are less urgent, there will be shivering; an anxious countenance; brown tongue; sallow appearance of the skin; disturbance of the mind, but to a less degree than in the former; and in these cases, where the symptoms are not so urgent, although the disease may go on for a long time, nevertheless the patient will ultimately recover. In these cases, where the disease persists for a long period, the local changes which I mentioned become manifest, viz., redness in the course of the vein; discharge of pus from the part where the ligature was applied; hardness of the vein, and swelling over the part which has been injured; and the abscess forms and breaks, and you will be able to press out the fluid from it even for several inches. If the disease has occurred after bleeding from the arm, several abscesses may form a few inches distant from each other, reaching up as high as the shoulder. But even cases which have gone on to the formation of these secondary abscesses may recover. The abscesses may be laid open; they will then go on secreting purulent matter for a long time, but ultimately granulations will form on the surface, and the patient will be restored. If this were all, there would be no reason why the majority of cases should not recover; but I have not yet described the principal thing which prevents this fortunate consummation. The patient goes on suffering the train of symptoms I mentioned before, viz., shivering, headache, &c., which appears to be connected with venous inflammation in the first instance; but as the abscesses come forward, or as the inflammation subsides, the constitution does not recover, but appears to suffer more. As the local symptoms subside, you might expect the constitution to recover itself; but instead, you find the febrile excitement con-

tinuing, with an anxious countenance, sallow tinge of the skin, fresh attacks of shivering, and pains in other parts of the body. One will complain of pain in the opposite shoulder, another in the knee, whilst a third will have a short cough or pain in the liver. In fact, there will be a variety of symptoms present in various parts of the body; and if the patient dies, you will find that actual disease has taken place in them. In one patient you will find both knee-joints filled with a reddish fluid; another will have a deposition of cheesy matter in the liver, which goes on to abscess; a third will have it occurring in the lungs, whether beginning in the air-cells or not I know not; and these go on to abscess. You will also find effusion of fluid into the ventricles of the brain; effusion of lymph sometimes into the pericardium; inflammation of the pleura, and effusion here also. It is said the inflammation has been traced to the vena cava, but I do not think this observation correct. Mr. Hunter threw out the hint as if it were a possibility, and later writers have mentioned it as a matter of fact. Then you have fluids deposited in various parts of the body, and you may have fluid, and even lymph without pus. Venous inflammation may be the consequence not merely of a ligature or wound affecting a venous trunk, but it may arise in this way. A man has erysipelas, which is a disease of the integuments. This may extend into the cellular membrane, producing sloughs there, and abscesses under the skin, and so you have abscesses and sloughs mixed together. Now, in this case, when the patient dies, you will find the veins have participated in the erysipelatous disease. A man comes into the hospital (a gin-drinker) with a wound in the leg, and he has inflammation of the cellular membranes. The man dies, and when you examine him, you find pus deposited in the cellular membrane. Here again you have the disease of the veins. Inflammation of the veins also not unfrequently takes place after child-birth. Inflammation of the veins of the uterus, extending into the hypogastric, internal iliac, and cava veins, sometimes occurs in these cases. Here, also, if the patient dies, you find the veins filled with pus, and there is swelling of the

lower limbs. In this way we account for 'phlegmasia dolens,' the white swollen leg. It is supposed that this swelling, which takes place after child-birth, is the result of venous inflammation; but if it is, it must be said that venous inflammation does not usually assume the violent character we have just described, but generally that milder form which I mentioned first; but very few of these cases occur where death follows. Indeed, Sir Charles Clarke told me he never saw a case which terminated fatally.

At our last meeting I began the subject of venous inflammation, and if I recollect rightly I explained some of the more remarkable circumstances which occur towards the termination of the disease —I allude to the inflammation showing itself in different parts of the body. Now by this I mean not merely those parts which are in the line of the inflamed vein, but parts quite distinct from, and having no connection with, the original seat of the disease. Thus, a man may have inflammation of the arm, and presently he will be attacked with inflammation of both knees, and the cartilages will be entirely absorbed; or again, abscesses may form in any other part of the body. An interesting pathological question is, 'Where there is venous inflammation, why should there be these deposits of pus in different parts of the body?' It is the opinion of some persons that pus deposited in an inflamed vein is carried into the general circulation. M. Cruveilhier has made some experiments on this subject which seem to prove that pus may be formed in an inflamed vein without being absorbed. Mr. Arnott says, that although pus may not be produced in the vein, still there is a diseased action going on, by which a secretion analogous to pus is formed, which becomes mixed up with the blood. But neither of these declarations can be considered as established, and I do not think it is at all necessary that there should be a morbid secretion of pus to produce these symptoms. A man has an attack of fever without your supposing that there is an affection of any particular organ or region of the body, yet what is the result? In one man you will find ulceration taking place in the jejunum or ileum; in another there will be a deter-

mination of blood to the head, or he will have an attack of inflammation of the brain or lungs, and these results would lead us to suppose that where the system has been subjected to febrile action for a length of time, it acquires a disposition to produce local inflammation. A gentleman had a stricture many years, and several ineffectual attempts had been made to pass a catheter into his bladder; I however at last succeeded, but having drawn off his water, he was immediately seized with a violent shivering, and after this had an attack of inflammation of the neck, and since that time the head has been permanently fixed and immobile. Now this, you see, arose merely from passing a catheter, and of course no part of it could have been absorbed. Again, a lady of nervous temperament had spasmodic contraction of the sphincter muscle, attended with great pain whenever she went to the closet; well, I divided the muscle on both sides, and she immediately fell into a state of complete syncope, from which, after a time, she recovered, but only to relapse into the same state a second time, and this entirely from the influence produced upon the nervous system. These attacks continued for some time till ultimately she was seized with inflammation of the chest, from which she died. On then examining the body, I first looked to the part where the operation had been performed; in the hæmorrhoidal veins nothing was to be seen; but I found inflammation of the peritoneum, and also effusion of lymph in the cavity of the chest; now in this case there was inflammation set up in a distant part of the body, which could not be from the absorption of any diseased matter; in short, it was produced entirely from the effect upon the nervous system. After injuries of the head we find these deposits in various parts of the body, and they occur more especially when there is suppuration going on between the dura mater and bone. One person will die of abscesses in the lungs, or of inflammation of the pleura, accompanied with effusion into the cavity of the chest. Then I have known cases where there has been fracture of the humerus or clavicle, and when the patient has died, the end of the bone has been found bathed in pus, and

in these cases matter has been found between the dura mater and the bones. Some persons would have said, perhaps, there was in this case inflammation of the veins, which you have overlooked, and purulent matter has got into the circulation, but this is no at all probable; because it is not pus always which is effused, sometimes it is merely serum, and sometimes again you will have this secondary deposition of matter set up where there is no suppurative inflammation at all. A man had an injury of the head, and the surgeon applied a caustic issue which produced a large slough, so that the bone was exposed; in a short time the man died: previous to his death, however, he had a set of curious symptoms, for which we could not account: such as swelling of the abdomen, and a puffiness about the body; and when examined after death, we found there had been considerable peritoneal inflammation. The head was also examined, and it was found that where the caustic had been applied, the bone was dead, and of course, the dura mater separated from it, and a little pus was found between them. 2ndly. A girl suffering from pain in the head, had a caustic issue applied; she died of inflammation of the lungs, and it was found that where the caustic had been applied, the bone was dead; there was slight sloughing of the part and effusion into the brain. 3rdly. A man was admitted into this hospital, who had been beaten about the head with sticks; he remained here till he died, and on examination, it was found that small particles of pus were deposited between the bone and dura mater; there was also a gelatinous matter mixed with these particles. Now, to say there was inflammation of the veins in all these cases, would be absurd. The view I am inclined to take of these cases is, that there is a certain disturbed state of the constitution induced, which has a tendency to end in the formation of pus; for you see that in persons who die from symptoms analogous to those we have just enumerated, there are always to be found in the extremities, what are called critical abscesses, depositions of pus in the cellular membrane. A gentleman had a violent cold, and was attacked with inflammation of the vena saphena, and died. The result

here was rapid, and shows the importance of careful attention to the local disease, though still, as I said before, as a general rule, and in the majority of cases, this disease is not dangerous. The treatment must depend upon circumstances. But suppose you were called to a patient with symptoms such as we mentioned in our last lecture (shivering, sallowness of complexion, brown tongue, and slight derangement of the mental functions), you would apply leeches in the course of the vein; retain the limb in the recumbent posture; keep the bowels open, and give moderate diet. But the principal remedy is mercury, in moderate doses, continued at stated intervals till the gums are slightly affected. Calomel gr. ij., or hydrargyri bichloridi gr. $\frac{1}{8}$, bis in die, is, I think, the best mode of administering the remedy. Where there is much inflammation of the leg, and considerable swelling, you may relieve the patient considerably by puncturing the part with a common needle; the fluid will escape rapidly from the cellular membrane. Mind, I do not say this will cure the disease, but it will relieve it considerably. I am seeing a gentleman now who had, some years ago, an attack of venous inflammation, and the leg was so much swollen as to threaten the bursting of the skin. In this case I punctured it in the manner just described, and afterwards he did it himself, and always found considerable relief from it. This mode, of course, gives greatest relief when the serum is very thin; sometimes it will be a comfort to the patient to wear a bandage as a support to the parts, but it should be *flannel*, and never applied *tightly* with the view of preventing the swelling. Once I saw a lady who had that form of swelled leg called phlegmasia dolens, the swelling being very large, and the skin tense; a bandage was applied, but she was soon attacked with pain in the hypogastrium, and a variety of symptoms which I cannot describe; the bandage was taken off; immediately the swelling returned, but the pain in the abdomen, and all the other symptoms just alluded to, disappeared; and this occurred twice successively. In acute venous inflammation, it is generally a good practice to take blood, but this cannot be done in all cases. Sir

E. Home tied the vena saphena in three cases, but they all died except one, who being a very strong man, was bled very freely, and here the practice succeeded beautifully, and the venous inflammation almost entirely subsided. But sometimes this disease is attended with low symptoms, the pulse being weak and feeble, and there is great prostration of strength. In such a case as this, it is evident you could not take blood largely; you must, therefore, be content to apply leeches to the part. Warm fomentations seem to answer better than cold applications; but this may be regulated by the feelings of the patient. Occasional purging and low diet will, of course, be most proper. Very frequently this is a consecutive disease, as it may follow an attack of erysipelas. Of course, in this case, and when it comes after cellular inflammation, the patient will not bear depletion. It is a question with some whether or not mercury is beneficial in these cases. In those which I mentioned of Sir E. Home's, which occurred when I was house-surgeon to this hospital, it would doubtless have been extremely beneficial, but the administration of the remedy at that time was not thought of. In those cases where there is great prostration of strength, I doubt the propriety of its use; but where this symptom is absent, it may be employed with advantage. It, however, requires a good deal of discrimination on the part of the surgeon, to determine when it is, and when it is not right to put the patient under the influence of mercury.

You will find, gentlemen, after venous inflammation, the limb is generally left swollen, and the veins are what is termed 'varicose.' Can anything be done here? will a bandage do good in these cases? To a certain extent it will; but let your patient walk about, and you will find that the collateral vessels will thus become dilated so as to make up for those which have been obliterated. In some cases, the swelling will entirely disappear, whilst in others, it will remain, to a certain extent, the remainder of the patient's life. I spoke of the disease in connection with varicose veins as though it only occurred in the lower extremities, but I saw it in the forearm of a patient a very short time ago,

produced, as I think, by bleeding. In cases where a secondary deposition of pus takes place, very few, I think, recover, as the deposition is scarcely ever confined to one part of the body; and if you let it out in one part, there is no method of preventing its recurrence in another.

When venous inflammation has gone on some time, it is quite beyond the reach of art. But you should always bear in mind the original cause of the disease, and also the patient's previous mode of life. Many of you will recollect the case of the man last year, in whom I tied the external iliac artery; after the operation, there was a quick, irritable pulse, with pain in the opposite shoulder; and these I attributed to the man being debarred his usual quantity of stimulus. After bleeding him once, and finding he was no better, I allowed him a quantity of gin daily, and if I had not done so, I think there would have been the secondary formation of matter, as in some other cases I have described. Those persons who drink large quantities of spirits, are most liable to this deposition of matter, and, I think, it is owing, in a great measure, to their being deprived of their usual stimulus; and in these cases you will sometimes succeed in arresting the disease by allowing the patient a certain portion of that kind of stimulus to which he has been accustomed. The general rule for treating inflammations, is by depleting remedies;—but there is another plan. Suppose a man gets a piece of glass in his arm; you would of course, in the first instance, remove it if you could, just as in chancre you give mercury to remove the cause which produced it. On the very same principle, in those cases where you have low symptoms coming on in cases of venous inflammation, produced by the withdrawal of the usual quantity of stimulus, your first plan should be to restore to the patient at least a portion of that stimulus. Let me take this opportunity of observing, that mischief is not unfrequently produced by violent changes in the patient's diet. If a man who has been accustomed to drink gin, or other stimulus in large quantities, meets with an accident, and you take him off that stimulus, you will have the injury going to a much

greater extent than it would if you had not done so. And I am certain that I have been more successful in the treatment of persons who have been accustomed to drinking or high-living, by merely diminishing their quantity, than when I have had recourse to antiphlogistic treatment.

ON POLYPI OF THE NOSE.

UNDER the name of polypus of the nose, although many affections have been confounded, I mean to include simply a peculiar excrescence of the Schneiderian membrane, which is not malignant. This simple polypus is much the more frequent among the higher classes of society, and is most common in *men*. It seldom occurs before puberty. I am not able to connect it with any particular habit. It is common among the Portuguese, and attributed by them to their snuff being adulterated with ground glass. It may be so, but I have not observed that snufftakers in this country are particularly liable to it, though I believe that snuff is much adulterated here—as much, indeed, as medicine.

The tumour is generally attached by a thin neck to the Schneiderian membrane, or by a narrow pedicle, or a long, thin membrane, continuous with the Schneiderian, but less vascular. The polypus is very smooth, and but little vascular, though sometimes vessels burrow into it. It is gelatinous in density, and appears to consist of coagulated albumen. In a few instances there is but one polypus; but commonly there are two or three, and frequently clusters, so that you can scarcely count them. The colour, which it is essential to notice, is pearl-like, or white, mixed with brown

stage that polypus exists, or is occurring, are merely an unnatural secretion of mucus; a great desire to blow the nose, such as may arise from common catarrh; but in catarrh the secretion lasts for a shorter period, whilst the discharge from polypus does not subside, on which account you may suspect incipient polypus. When bone, for instance, is affected, you have pain in the forehead, but there is none in polypus. The smell is affected, the patient fancying, perhaps, that he smells odours which do not exist; or the sense of smell may disappear, which is more common; the taste at the same time is injured, if not destroyed. These symptoms increase as the polypus gets larger, with obstruction of the middle meatus of the nose, and then of the inferior meatus. Respiration through the nose is imperfect, and at last the patient breathes only through the mouth; this is troublesome, especially at night, because the using the jaw in the day acts on the salivary glands; but at night the open mouth is always dry, and the tongue becomes hard, like a board. At first there is no difficulty of blowing the nose, though afterwards there is, and the mucus is blown down the pharynx. These symptoms may, in their progress, occupy a year, or many years. If neglected, the polypus grows larger, in becoming more solid, and the base almost cartilaginous; sometimes it is large enough to hang down outside. It varies with the weather, swelling in a moist atmosphere; it is, in fact, an hygrometer to the patient, having a smooth surface and an opal, semi-transparent appearance. It may project, backwards, into the pharynx behind the soft palate, and then it may occasion giddiness, from pressure on the internal jugular vein, though persons generally procure surgical assistance before the case is so far advanced. But sometimes the disease is neglected, and I remember a man in this hospital who had had a polypus removed, but which renewed, and when he came was enormous, projecting from the nostril under the skin of the face. The patient died of cerebral symptoms, and after death there was found effusion in the ventricles of the brain, from the pressure of the polypus. I have seen also, a boy, 16 years of age, having a polypus of an

enormous size, not less than my fist, hanging down at the back of the pharynx, which could be felt in the mouth, and which pushed out the ossa nasi, giving him a nose broad enough to cover half his face. I lately saw polypus cause absorption of the os unguis; it extended into the orbit. It was removed, and I believe, successfully.

In the early stage, the existence of polypus is doubtful, if you cannot see it; but, by-and-by, you can discern it by dilating the nostrils with the forceps, near the window, and the more easily if the sun shines. If large, you can tell how far it extends; if it extend into the pharynx, by putting your finger into the mouth; if it extend to the brain, you may tell that by the cerebral symptoms. Then, how are you to get rid of it, since it is not under the influence of medicines, being quite local? After it has been removed, I have used local remedies to prevent its return, but medicines are only useful after removal; therefore straightway remove it. In common polypus, ligature is impracticable; and those who propose it can never have had anything to do with the disease. It is impossible also to remove it by the knife, as you cannot see it, and when touched with a sharp instrument the blood directly flows so as to prevent your continuing the operation. Neither with the scissors can you see your way sufficiently. The best way of operating is with a proper pair of forceps, if you know how to use them. The proper forceps will pull away its neck. The *whole* of the opposite surface ought to be quite rough; convex above, concave below, opening laterally, so that it may hold the polypus tight. They should be pretty strong, and not slender, unless for small nostrils. If made with a screw in the handle, having a double worm, when the polypus is grasped, by proper manœuvring, and screwing it tight, there is no danger of its slipping off. The procedure may be longer, but it is more certain. In a few cases you will want such forceps as these, which open from above downwards, but they are not often required. Any forceps should be oiled and warmed, the patient in a chair with his chin elevated; get hold of the polypus near the base, by intro-

ducing the forceps upwards to the back of the nostril; place one blade on each side, tighten the forceps with the screw, and then —not merely pull it out at once, or the polypus will break off—but twist a little to each side, gently draw forwards, push backwards, twist it again and again, a few times, and then draw out the forceps with some force, and the polypus will come away entire. There may be several others, and if so, repeat the operation. The patient should blow his nose, so as to bring them all into view; if he cannot do so, you must endeavour to remove them without seeing them. There may be, also, a small one jammed in by the larger, which is to be seen on removing the latter. Having done all this, the relief to the patient is immediate.

In some cases one operation is sufficient; in others, two or even three, are necessary. Be gentle in using the forceps; rough usage might impair the ethmoid bone, or even the cribriform plate. I never saw any inflammation result from the operation, or cerebral symptoms, or erysipelas. In one case hæmorrhage followed, which I easily stopped by plugging the nostril with lint. Mucous membranes bear injury more readily than the skin, as in the case of internal piles.

In very old, firm, and cartilaginous polypi, there is great adhesion to the bone; but it is of no consequence if you remove a small plate of the bone with it, for at least that shows that the whole polypus has come away. In these cases I use a peculiar forceps, resembling those employed by ladies for cutting flowers, so constructed as to cut at the upper part, having a rough surface below, to hold the polypus. These shave off the polypus as near the bone as possible.

I will conclude my remarks on the extermination of common polypi from the nose by adding that in some cases you may know from what occurs at the operation, that there is a tolerable chance of the tumour not returning. In making this observation I allude to an occurrence that I met with to-day (Wednesday Nov. 14th). A gentleman came to me with a polypus. There was only one that I could discover. In removing it, a portion of the cells of the

ethmoid bone was taken away. There is no harm whatever in a part of the ethmoid bone being thus extracted; I never saw any ill consequences arising from it, and you may suppose, from the polypus being thus completely removed, that there is less chance of its return than there otherwise would be. Another polypus may arise from other parts of the mucous membrane, but certainly not from this.

Now the polypus being removed, the patient will immediately experience very great comfort—great relief will follow the operation. But he will naturally inquire whether it will return, and you must answer that most likely it will, and that if it do he must again have it removed. But then he will probably put another question. Can you do anything to prevent its recurrence, or to make its growth slow? I believe that you may retard its return in many cases, or even prevent it. About eighteen years since, a gentleman came to me with polypus of the nose. He had many times had polypi removed by a surgeon in the country; but he now came to London and applied to me. I removed the polypus, and recommended him to employ what I had before found useful, namely, white precipitate ointment. It should be softened by holding it before the fire, and then, with a camel's-hair brush, you must paint the upper part of the nostril from whence the polypus seems to have originated. This must be done every day. It is a very mild application, and does not irritate. This gentleman very steadily persevered with the plan; he often came to me for other little complaints, thus I had an opportunity of watching the case, and the polypus did not return for fifteen or sixteen years, when I again removed it. I have seen other cases in which very great good appeared to arise from this local application, after the removal of polypi. Sometimes I have employed the ung. hydrarg. nitratis diluted, but I have more frequently used the white precipitate, and I prefer the latter. On the whole I think it is quite as effectual, and does not inflame the nostril, or cause sneezing, or plague the patient so much as the former. Its use, however, must be persevered in steadily—not for a few

days, a few weeks, or a few months, but even for years. The patient must learn to apply it carefully for himself, or get some one to apply it well for him. If the brush be merely introduced a little way into the nostril, it can do no good. You must explain to him the direction which the passage of the nostril takes, and show him how to pass it up the middle meatus, directing the instrument first a little upwards and backwards, and then directly backwards into the throat; and, indeed, the brush ought to be carried back as far as the pharynx, so that you may sweep, as it were, the whole roof of the nostril. You may use astringent lotions, which I have no doubt are sometimes attended with advantage, such as a solution of sulphate of zinc, or a solution of alum. Dissolve half a drachm of sulphate of zinc in eight ounces of rose water, with a drachm of tincture of galls, and let the patient inject this with a syringe into the nostrils every day. This may more especially be employed where the nostril is narrow, and a camel's-hair brush of sufficient size cannot be made to enter it.

I have sometimes applied the nitrate of silver to the roof of the nostril from which the polypus grows. This must be used carefully, not because of any real harm that it will do, but if it be applied too extensively, it will produce inflammation of the nostril. The upper lip, from the margin of the nostril, must be protected by smearing the parts with olive oil, otherwise the nitrate of silver will flow down upon them, and then, some time afterwards, when the patient has been exposed to the light, he will find a great black stain on his face.

A polypus occurs in the nostril of a different structure from that which I described in the last lecture—a fleshy polypus, apparently composed of firm, solid fibrin, with a very thin membrane over it. It is apparently of the same structure as the polypus that grows from the uterus, and sometimes from the rectum. I am inclined to believe that sometimes the common polypus alters its structure, and becomes a fleshy polypus; but certainly that is not generally the case. I think, however, it does occur in some instances; I know that in other cases a polypus is fleshy from the beginning.

These fleshy polypi have generally a narrow neck, as is the case with polypus of the uterus, and that which grows from the inner surface of the rectum. The polypus does not appear to me to be restricted to any part of the nostril, to the cells of the ethmoid bone, or the superior turbinated bone. I saw one of these polypi on the septum nasi, quite within sight. It was an inch in length and three inches in diameter, and attached to the surface of the septum nasi by a narrow neck. I introduced, not a pair of forceps, but probe-pointed scissors, slightly curved, and snipped off the polypus close to the septum. I applied nitrate of silver to its root, and when I saw the patient a considerable time afterwards, there was no reproduction of the polypus. In like manner the fleshy polypus of the uterus does not grow again after it has been removed by ligature. I had also a case under my care in which a fleshy polypus was attached by a narrow neck to the Schneiderian membrane in the lower part of the nostril, and quite within sight. I removed it in the same manner, but I cannot say whether it returned or not. Here (presenting it) is a fleshy polypus, which I removed by ligature; it hung down the posterior nares into the pharynx. In like manner to this the polypus of the uterus separates with the ligature attached to it. It is a remarkable circumstance that though, when you tie a polypus of the uterus, the ligature be placed below the origin, yet, when it comes away, the neck situated above the part to which the ligature was applied, has exfoliated along with the rest. Here is a polypus of the uterus (exhibiting it) in the act of separation under the application of a ligature. When I was assistant-surgeon here, a young man, a soldier, came to this hospital. There was considerable difficulty in both his respiration and deglutition, but there was nothing to be seen in the nose. On looking, however, into the throat, I saw on the back part an enormous tumour projecting the velum pendulum palati forward to the mouth. The tumour hung down farther than the eye could follow it, but with the finger I could just reach its lower margin. On a careful examination it was found to be a great fleshy polypus attached to and descending

from the posterior part of the nostril. It had been growing for many years. I removed this by ligature. I never saw or heard anything of the patient afterwards; but as the operation was perfectly successful, and he was very soon well, I think that in the common course of things he would have come back if the disease had returned.

I have said that this polypus was removed by ligature. Now, it is much easier to *talk* of removing polypi in this way than to *do* it; for when they hang from the nostrils into the pharynx it is difficult to accomplish it. There have been many very ingenious contrivances for removing polypi in this situation by ligature, but according to my experience they are more ingenious than useful. You may apply a ligature to a polypus of the nostrils by a very simple apparatus much better than by anything complicated. It is rather difficult to explain the method of applying a ligature when the tumour hangs into the pharynx, and yet those are the cases in which it is necessary to have recourse to this means for the removal of the polypus. When the tumour is situated in the nostrils, it may be snipped off with a pair of scissors, or extracted by means of forceps. There is no difficulty in tying a ligature when you know how to do it, but, as I have said, it is difficult to describe the mode. I will, however, endeavour to make myself intelligible.

One method of tying a fleshy polypus that projects from the nostrils into the pharynx is this:—Pass a bougie into that nostril from which, judging by the exploration of the finger, you suppose the polypus to arise. It may have its origin from the septum between the two nostrils, and in that case you may pass it into either nostril, but generally by introducing the finger into the pharynx and turning it upwards, you will discover that the tumour arises from one or the other nostril. The bougie is to be passed through that nostril into the pharynx; the other finger must then be introduced into the pharynx, the bougie bent, and one end brought out at the mouth. Thus, one end of the bougie projects from the nose, and the other from the mouth. You fasten a

double ligature to the end of the bougie, that projects from the mouth, and the loop hangs down. You draw the bougie out at the nose; the ligature, of course, follows it; you cut it off from the bougie, and then the two cut ends hang out of the anterior nostril over the upper lip, the loop at the opposite end hanging out of the mouth. The ligature should be strong and well waxed, so as to make it stiff. It should also be very long, or you will find the operation difficult: it is easy to cut it shorter. The next step of the operation is to get the ligature over the tumour. For this purpose you cut through the loop hanging from the mouth, so that there are now two single ligatures. One end of the single ligature is to be passed through a silver tube, and putting the tube into the mouth and pharynx you carry one end of the ligature under the base of the tumour on one side of it. You leave that out of the mouth, and your assistant holds both ends of the ligature to prevent it from slipping; then with the same silver tube, you are to take hold of the other loose ligature at the mouth, and carry that on the other side of the polypus, and there your assistant is to hold it. A knot that will not slip must then be made of the two ends of the ligature that hang from the mouth. You have a ligature now on each side of the polypus, and then, by carefully drawing the ligatures out at the end of the nose, you have got hold of the polypus at its base. A silver tube is then to be introduced into the nostril, and you tighten the ligature upon the shoulders of the tube in the same manner that you are taught in the lectures on midwifery to tighten a ligature on polypus of the uterus. It must be tightened every day till you have completely cut through the polypus. But if this were all, when the polypus was loose it would drop into the pharynx; that would be of no consequence if it were a small one, but if it were large it might choke the patient. To obviate this, after the ligature has been applied, pass a needle, with a strong ligature, through the polypus, and let the ligature hang out of the mouth, so that when the polypus is loose the patient may draw it out at the mouth. It was in this manner that I tied the very large polypus that I mentioned a few minutes since.

But there is another method that is still more convenient than this, and which I have employed on other occasions. It was the method adopted by Dessault. You require a silver tube by which the ligature is to be directed into the mouth, a shorter silver tube to be introduced into the nostril for tightening the ligature, and two pretty long ligatures. You introduce a bougie into the nostril and bring out one end at the mouth. To this you fasten a single and a double ligature; the single one must be very long. That being done, the bougie is to be drawn out at the nose, and, of course, the ligatures follow it. You then cut off the bougie, and you have the two ends of the double ligature hanging out of the nose, and the loop hanging out of the mouth; one end of the single ligature also hangs out of the nose, and one end out of the mouth. The single and the double ligature always pass on one side of the polypus; but by means of a silver canula you draw the single ligature to the other side of the polypus. The ligature being held in its place by an assistant, the end of the single ligature, projecting from the mouth, is passed through the loop of the double ligature, and the ends of the double ligature being drawn out of the nose, the single end follows, and you make a ligature which you fasten by means of a canula introduced into the nose. This method is easier in practice than the one I mentioned before, though it is more difficult to describe. (The lecturer illustrated the foregoing modes of tying the ligatures on a paper model held by an assistant.)

MALIGNANT TUMOURS IN THE NOSE.

There are tumours which grow in the nostrils, and are sometimes confounded with polypi, but which are of a malignant character. There is an example of one on the table. A boy was admitted into the hospital with this tumour, I think, in the left nostril, which caused considerable bulging of the ala nasi. On looking into the nostril I saw a tumour of a brownish-red colour, elastic to the touch. It had not the appearance of a common

polypus. It seemed to have a narrow attachment outside of the superior maxillary bone, but no attachment to the nostril elsewhere, for a probe could be passed around it. It was doubtful whether it proceeded from the antrum or not; for at that time there was no apparent enlargement of the antrum. It was evidently too firm to be removed by ligature or forceps in the usual manner. I divided, the ala nasi, and carried the incision through the upper lip. This exposed the cavity of the nostril, and then, having discovered the base of the tumour, I cut it through, removing it as close to the bone as I could. To that part from which the tumour was removed, when the bleeding had ceased, I applied lint spread with chloride of zinc and flour, in order to make a slough of the part from which the tumour had arisen. The wound made in the upper lip soon healed, as these wounds do, by the first intention. For some time there was no appearance of the recurrence of the disease, and about three months after the operation the boy left the hospital. He returned, however, about a month afterwards, there being then a great deal of discharge from the nose, evident disease going on in the nostril, and a swollen belly. I did not then see him, for he was admitted, for the second time, just after I had resigned my office here. Paralysis of the lower limbs came on, and the boy died. On a post-mortem examination it was found that the disease had returned in the nostril, the tumour had destroyed in a great measure the ethmoid and sphenoid bones, and was seen lifting up the dura mater near a part of the ethmoid bone. It had also destroyed some of the bones of the face, and filled the cavity of the maxillary antrum. The same disease existed in other parts of the body. There was a tumour of the same kind attached to the xiphoid cartilage; others were connected with the vertebræ and ribs, and the bodies of the vertebræ were altered. There was a deposit of substance, similar to that removed from the face, between the vertebræ and dura mater of the spinal canal, pressing on the spinal cord, and accounting for the paralysis of the lower limbs. There was likewise some effusion into the ventricles of the brain.

This was evidently a malignant tumour, which might have been mistaken for a polypus, although the appearance was so different from the common polypus that on the removal of the growth the disease was readily distinguishable.

I have seen several cases of malignant tumour growing from the Schneiderian membrane. In some cases there is reason to believe that the disease begins between the periosteum and the bone; but I have no doubt that malignant tumours do sometimes grow from that membrane. A young gentleman was brought to me bleeding profusely from the nose. He was of strumous complexion, and one of that class of persons who are liable to a vascular condition of the mucous membrane of the nose. It was of a much more than usually bright scarlet colour, and, indeed, looked like scarlet velvet. The least injury to it would make it bleed, not merely a little, but to many ounces; and there was quite an alarming hæmorrhage from a mere scratch with the sharp end of a probe. By-and-by he came to me with a sort of fungus growing from the diseased membrane over the inferior turbinated bone. This fungus was quite distinct, it was not larger than the end of the little finger, and was attached by a narrow neck. I snipped it off with a pair of scissors, but there was such a rush of blood that I could not tell whether I had removed the whole or not. The fungus returned; I suppose it was not entirely removed, and it grew rapidly. In a short space of time it filled up the entire nostril, and extended back to the pharynx, where it could be felt with the finger projecting the soft parts into the mouth. Mr. Keate saw the patient with me; we examined the tumour very carefully, and hoped that we might be able to remove it by ligature, or, at least, to remove a part. It was tied, but it proved to have so broad a base that the little piece removed did no good whatever. The fungus grew in spite of everything that could be done; it caused caries of the bones of the nose, destroyed the orbit of the eye, projected through the cheek, and ultimately the poor fellow died.

I saw another case of the same kind. The fungus tumour

having originated in the Schneiderian membrane, occupied a great part of the nostril, and then projected through the back of the pharynx. Sir Astley Cooper and myself attended the patient, and we agreed that it was better to remove that portion which protruded through the pharynx by ligature. I applied it in the way I have endeavoured to explain, with perfect ease. I took hold of the tumour with the ligature upon it, and in the course of a few days the ligature came away. Though a very large part of the fungus had been included in the ligature, it became so small and shrivelled that it was hardly observable, just as is the case with what Dr. Clarke calls cauliflower excrescence of the uterus. When that has been tied for some time, and the ligature comes away, the tumour being composed almost entirely of vessels, it vanishes: so it was here. The pharynx was cleared by the operation, but the tumour grew in spite of all that could be done, and we recommended the father, as we could do him no more service, to take his son away. I did not hear the result of the case, but I have no doubt that the patient died shortly afterwards.

From my experience of these malignant tumours, I should say —Let them alone. I never saw any ultimate good arise from any measures that were adopted for their removal; and, indeed, for the most part, malignant tumours in the nostril have so broad a base that any operation for their removal is out of the question.

ON DISEASES WHICH ARE SOMETIMES MISTAKEN FOR POLYPI OF THE NOSE.

I have a few words to say concerning these diseases. The case that I shall first mention is a very common one. A young person, frequently a child, is brought, having dilated pupils, a fair complexion and thin skin, with some difficulty of breathing through the nostrils, and perhaps rather more secretion from them than usual. On looking into the nostrils the Schneiderian membrane appears very turgid, more vascular than ordinary, and on the

outside there is a tumour, an excrescence, sometimes small, at other times pretty large. This may be mistaken for a polypus, and, indeed, the disease puzzled me when I first saw it. This appearance, however, is produced merely by the thickening of the mucous membrane of the nostril at the anterior extremity of the inferior turbinated bone. I do not believe that the mucous membrane there is really more thickened than it is anywhere else; but it is more apparent in that situation on account of the projection of the bone.

In some cases in which the mucous membrane has been sufficiently thickened to obstruct the respiration through the nostril, I have introduced a pair of probe-pointed scissors, slightly curved, and snipped off a portion of the projecting mucous membrane. There is no harm whatever in its excision; and where the nostril is much obstructed, the operation affords great relief. You may suppose this to be a very simple operation; and so it is, for it can be done in an instant, but yet it requires some care in order that it may be done properly. In the dead body you might snip off a bit, and if you had not completed it by one incision you could make another. But in the living subject the mucous membrane is full of vessels, and the part must be snipped off at once; for the moment one division is made with the scissors, the hæmorrhage is so great that you cannot see a bit of the remaining part which requires to be divided. It is only every now and then that you find it necessary to have recourse to this operation. In other cases give the child small doses of steel for three weeks, then suspend its exhibition for a fortnight, and again resume it—and proceed in this manner for three or four years. Delicate children who are liable to this disease of the Schneiderian membrane are always benefited by the exhibition of steel; it should, however, be given not in large doses, for a short time, but in small ones long continued. Where the constitution is weak, you may sometimes cure the disease in three weeks, but the rectifying of the constitution is a work of years. Some good may be done by local treatment. Dissolve two grains of sulphate of zinc in an ounce of

rose-water, and inject a portion into the nostrils two or three times a day; or paint the inside of the nostril with diluted ung. hydrarg. nitratis by means of a camel-hair brush.

I have seen some cases in which a small abscess has formed in the tumour that I have just described. Suppuration has taken place in the substance of the Schneiderian membrane just where it projects in front of the inferior turbinated bone, and the best plan to adopt, is to cut off, with a pair of scissors, membrane and abscess altogether. When an abscess forms in a pile, that is best relieved, not by laying open the abscess, but by snipping off the pile.

Another disease, sometimes mistaken for polypus of the nose, is connected with a morbid condition of the ethmoid bone. A patient has difficulty of breathing through the nose, with pain in the forehead, and blows his nose oftener than natural; by-and-by he blows away hard dry scabs of mucus, like bits of glue, and then there is an offensive putrid smell perceptible to others, and probably to himself also. This indicates disease in the bones of the nose, generally of the ethmoid cells, but sometimes more extensive. Occasionally it is supposed to supervene on syphilis, sometimes it arises from the long-continued use of mercury; sometimes from a scrofulous state of the system; or it may be the result of general bad habit, such as is called cachexia. I am not about to enter into the history of this disease at present, but merely to point out that it may be mistaken for polypus. The symptoms always show that it is not a polypus, and if you turn the patient to the light you will see a tumour at the upper part of the nostril. This consists merely of unhealthy granulations, organised lymph covering the Schneiderian membrane over the bone; and if you take hold of it with the forceps you do not pull away a polypus, but a bit of the Schneiderian membrane with the tumour over it. Take care not to mistake this case for polypus, because the treatment that is applicable to the one is quite inapplicable to the other.

ON DISEASES OF THE TONGUE.

I AM inclined to direct your attention to this subject, first, because you will find, especially in private practice, that you are frequently consulted about diseases of this organ; and, secondly, there is nothing worthy of notice about it in books. I have at different times looked over various books on surgery, and over the journals and surgical reviews, but I have not been able to gain any information about diseases of the tongue, except those of a malignant character; and I must add that the history given, even of these, odd as it may seem, is very different from what I have met with in practice.

In dyspeptic persons the tongue is frequently rather swollen; it becomes cracked on the surface, and may remain so without harm for years. It may bear the appearance of fissures on the surface, and the papillæ may be enlarged. This dyspeptic tongue, existing in a slight degree, is very common. A similar appearance of this organ occurs in persons who have been much under the influence of mercury. When a patient is salivated, the gums become inflamed, and the tongue also becomes inflamed and swollen. In bad cases of salivation, such as you scarcely ever see in the present day, because mercury is more prudently exhibited than formerly, the tongue becomes so swollen, that the mouth will not contain it, and this inflammatory state of the organ, arising from the use of mercury, is very apt more or less to persist afterwards. The tongue is swollen; there are fissures on the surface, and this appearance is retained to the last. Sometimes you will see a longitudinal fissure in the median line of the tongue which does not seem to swell up like the rest of the organ. I remember a patient

who had thus suffered from the use of mercury, and for a long time afterwards his tongue was much enlarged. The longitudinal fissure was so deep that it looked as if the tongue were divided into two parts, and the patient consulted a medical practitioner who, not being acquainted with the disease, thought the tongue was going to drop into two pieces, and proposed to fasten it together by a ligature.

This morbid condition of the tongue requires no special treatment. If the patient be dyspeptic, try to put his digestion in as good a state as possible. When he suffers from the use of mercury give him sarsaparilla, nitric acid, or whatever else may get rid of the effects of the mercury.

There are ulcers of the tongue which are different from those I have just mentioned; sometimes they accompany an enlarged and fissured tongue, but they may exist independently of those circumstances. The ulcers to which I now allude more especially occur as one of the sequelæ of syphilis. They are sometimes accompanied by the eruptions, little spots of syphilitic psoriasis on the body, and little spots on the scalp, but frequently they occur without symptoms elsewhere. A gentleman whom I saw not long since, had a chancre in the spring of the year, some few years ago. Two or three months after that, if I remember aright, he had secondary symptoms. He took mercury, but inadequately; and many months afterwards the secondary symptoms returned; they were, however, but slight, and yielded to some simple treatment. But a year and a half after the first attack of syphilis, there were ulcers of the tongue, so that he could hardly speak or swallow his food; and at the same time spots appeared on his head and elsewhere. He took a little mercury, his tongue got well, and the eruption disappeared. From that time, however, he was subject continually to little ulcers of the tongue, coming but not going of themselves, never disappearing till he had taken blue pill. The ulcers, of which there were several, were very troublesome, interfering with deglutition, nay, even making him speak thick, and occasioning him great distress. Of his own accord he took a

little mercury when they appeared, and they went away; but in two or three months they were sure to return. At last I made him take a course of gray powder (hyd. c. creta) for nearly two months; the ulcers healed, and never troubled him again. These cases are very common as a sequel of syphilis, and the ulcers are seldom cured, except by mercury; but, according to my experience, large doses of it do harm rather than good. Calomel and opium is the great medicine to be brought into play in these cases. The mercury with chalk, five grains, with one or two grains of Dover's powder (to prevent it from griping and purging) is preferable to any larger doses of the remedy. The length of time during which a person may be plagued with ulcers of the tongue is astonishing. I have seen them last for years, until a patient has been put through a pretty long course of small doses of mercury. I saw one gentleman in whom these ulcers followed syphilis, and had been going on for two or three years when he came to me. They yielded to the gray powder, but not very rapidly, and the tongue always continued disfigured and covered with cicatrices. In some cases the patient is relieved by taking sarsaparilla, especially an effusion in lime-water. Where mercury has failed, I have found that the best remedy is iodide of potassium, two or three grains, given twice daily, dissolved in plenty of water; but, in three cases out of four, the gray powder is much more efficacious.

Ulcers of the tongue, such as I have described, sometimes occur merely as accompaniments of dyspepsia, and they generally heal of themselves; but if they do not, one application of the nitrate of silver is generally sufficient to remove them. Those, however, that follow syphilis, do not yield to this remedy; nor does any local application, so far as I have seen, do much service.

Some persons who have ulcers on the tongue, have them also on the inside of the cheek. I suspect that they are originally little eruptions, but as they occur in a mucous membrane they ulcerate more rapidly than they would if they occurred on the skin.

There is a disease of the tongue which I have seen every now

and then, and which I am sure is very often mistaken for cance though it is of a different nature. It is a curable disease, althoug it looks like a malignant one in many respects. The first thin of which the patient complains is enlargement of the tongue, wit some pain. On examination you find a tumour in one part c it, not very well defined, not with any distinct margin. It is softish tumour, and increases in size; and perhaps another tumou appears in a different part of the tongue, and that increases als There may be three or four of these soft elastic tumours, with n very defined margins, in various parts of the tongue. This is th first stage of the disease.

In the second stage there is a small formation of matter in on of these tumours—a little abscess, which breaks externally, di charging two or three drops of pus. When the abscess has burs it does not heal, but another forms in one of the other tumour these abscesses may assume the form of ulcers, and the ulcer has particular appearance. In the first instance it is a very narro streak of ulceration, but on introducing a probe you find that th ulcer is the external orifice to a sort of fissure in the tongue. Th probe passes in obliquely; the tongue is, as it were, undermine by the ulcer, a flap of the substance of the tongue being over it.

The disease now becomes more painful, and at last these ulce may spread externally. In some instances they occupy a ver considerable portion of the surface of the tongue, but generall they burrow internally, and do not spread much towards the sur face. This is a very distressing state of things, and a man ma remain in this state for a long time. The glands of the neck d not become affected, nor does the general health suffer, excep from the difficulty of swallowing food. This is one inconvenienc experienced by the patient, and he also labours under a difficult of articulation. The tongue, from its enlarged state, may becom stiff, not sufficiently pliable for the purposes of speech, and th patient either speaks thick or lisps.

In some instances the disease may be relieved by a course o sarsaparilla, with small doses of bichloride of mercury. A stron

decoction of sarsaparilla, with from a quarter to half a grain of bichloride of mercury, may be taken in the course of the day. Of course, if there be anything wrong in the general health, you should endeavour to get that corrected, and attend especially to the state of the bowels and the secretion of the liver. If the secretions of the digestive organs be unhealthy, a dose of senna and salts may be given every other morning, and blue pill every other night. When the patient is brought into this state, one remedy, as I have said, is sarsaparilla with bichloride of mercury, but, according to my experience, this is not the best remedy. The remedy best adapted for these cases is a solution of arsenic. Give the patient five minims three times daily, in a draught, gradually increasing the dose to ten minims. It should be taken in full doses, so that it may begin to produce some of its poisonous effects on the system. When it begins to act as a poison it will show itself in various ways. Sometimes there is a sense of heat, a burning pain in the rectum; sometimes griping, purging, and sickness, and nervous tremblings. A patient who is taking arsenic, especially in pretty large doses, ought to be very carefully watched. At first you may see him every two or three days, and then every day; and as soon as the arsenic begins to operate as a poison, leave it off. When this effect is produced, the disease of the tongue generally gets well, but at any rate leave off the arsenic, and the poisoning will not go too far; it will do no harm. If, after a time, you find that the disease is relieved, but not entirely cured, you may try another course of arsenic. Perhaps it may take a considerable time to get the tongue quite well. Sarsaparilla, with the bichloride of mercury, may be given at one time; and at another, arsenic. You cannot give either of these remedies for ever; and indeed the arsenic can only be given for a very limited period; but it is astonishing what bad tongues of this description I have seen get well under these modes of treatment, especially under the use of arsenic.

Malignant diseases of the tongue generally are of the nature of carcinoma, but sometimes of fungus hæmatodes.

Carcinoma generally begins with scirrhous tubercles in the tongue, which may be felt externally; but, from the dissections I have made, I suspect that the disease never begins in one part only—that while there is one tubercle that can be felt, there are others that cannot in various parts of the organ. The scirrhous tubercle increases, becomes attached to the skin, and ulcerates. It may commence in any part of the tongue; sometimes the upper part, sometimes the end, and sometimes the lower surface.

Such is the history of the disease as it is commonly given in books, and as it frequently occurs in practice; but I must say that it does not always begin in this manner; and that in many cases a disease which you do not think of any consequence turns out to be malignant. For example: a gentleman came to me with a little round ulcer, not so large as a silver penny, and it gave him no pain. I touched it with the nitrate of silver, and used some other remedies, which I now forget, for it was many years ago. I proposed to remove a part of the tongue by ligature, but he did not like to undergo the operation, and went into the country. I saw nothing of him for three quarters of a year, and he then came back with an immense ulcer of the tongue. The tongue was much enlarged, and also the glands of the neck. He died, and I made a post-mortem examination. I found an enormous tumour, fungus hæmatodes of the tongue, extending to the epiglottis and the glands of the neck. The only external manifestation of this, in the first instance, was a little ulcer, without surrounding hardness, and which yielded to the touch. I have seen fungus hæmatodes of the glans penis begin in the same manner; it would not heal, and by-and-by the tumour burst out. A gentleman consulted me about two years ago with some little excrescences on one side of the tongue, which looked so very like warts, that I thought they were so; and I apprehended the disease was malignant, especially as it appeared to be confined to the surface. I am always suspicious of diseases of the tongue. I applied some caustic potassa to the warts, which destroyed them very effectually, and made a

deep ulcer there. The part healed, and the patient seemed to be very well. He came to me some time afterwards with ulcers where the warts had been; there was a great deal of hardness at the base, and they had all the characteristics of carcinomatous ulcers. So they proved to be; the disease continued to spread, there was repeated hæmorrhage, and the patient died. In other cases I have seen disease of the tongue, which did not present a suspicious character at first, prove to be malignant in the end.

There are on the table specimens of malignant disease of the tongue, illustrating the progress which I am now going to describe. The ulcer extends, eats away a good bit of the tongue, generally on one side; the organ becomes stiff, gets fixed to the neighbouring parts; deglutition and articulation become difficult; the patient complains of pain, and you cannot help him. The ulceration goes on; the constitution suffers from the influence of malignant disease, and also from the want of nourishment; the glands in the neck become affected; and I do not know anything more miserable than a patient dying of malignant ulcer of the tongue. Having described the progress of the disease so far, you can easily conceive the rest. The patient is gradually rendered weaker and weaker, thinner and thinner; then there is great bleeding; the lingual arteries are ulcerated, and it may be that the patient dies of hæmorrhage, for you can do nothing to stop it except by the actual cautery, and that you are often not in time to apply. The repeated hæmorrhages in these cases generally go a great way towards the destruction of the patient.

In the advanced stage of the disease nothing can be done. Can anything be done in the early stage? Can you remove the scirrhous disease in any way? If it be situated at the anterior part of the tongue you may excise it. An assistant could hold the tongue with a rough towel on one side while you excise the other, and he could also hold it while you secured the bleeding vessels by ligature. But a much simpler way would be to remove the part by ligature. A strong ligature, with a double needle, may

be passed through the tongue, and it may include as much as you please. If there be a large portion to be removed, make a notch with a pair of scissors behind and before; into which the ligature can drop so as to enable you to effect the strangulation more completely. It gives a great deal of pain at the time you apply the ligature, but you must have a very strong ligature, and tie it as tight as possible. The part introduced between the ligature is immediately killed; it assumes a purple and then an ash colour, and in the course of a few hours the pain is over; but profuse salivation follows, and in some cases lasts two or three days.

There is no great difficulty in removing, either by the knife or by ligature, any tumour from the tongue, except it be situated just at the back; but then I must tell you that I never saw any permanent good arise from it in any one instance. In the examinations I have made where there was carcinoma of the tongue, the scirrhous disease was beginning in other parts. A woman has a scirrhous tumour of the breast—do you think that you would succeed in curing the disease by cutting away a portion of the breast and leaving the rest? You have no chance of the operation succeeding except you remove the whole, unless the scirrhous tumour be distinct with a cyst around it, and have no connection with the breast. If there be fungus hæmatodes of the tibia, no surgeon of sense would think of performing amputation, except above the knee, even if he did it there. In order that an operation for malignant disease may be successful, you must remove the whole of the organ in which it is situated, otherwise there is no chance of permanent good. In the case of malignant disease of the tongue, you cannot remove the whole, but only that little bit in which it has shown itself, while there is an under current of disease going on everywhere else. I therefore cannot recommend you to perform the operation, and I think it is better to let a disease like this take its course than to subject the patient to the pain of an operation, and, what is worse, to the disappointment. The patient goes through the operation, and then in a

little while he is disappointed to find that he is just as bad as ever.

I cannot say that those small ulcers of the tongue which I described before, never run into malignant disease. I suspect that any ulcer there that has existed for an indefinite time may assume the character of malignant disease. A patient had ulcers of the tongue and cheek; he was apparently dyspeptic, and, so far as I know, they were not connected with syphilis. He had been subject to them for years, and they generally yielded to some remedies; but at last I was called in to see one of the ulcers, unusually intractable, in the cheek. It had become malignant, and the patient died of carcinoma of the cheek. Where there are ulcers of the tongue, take care that there are no external causes of irritation acting upon them to keep them up; for this will sometimes convert a simple into a malignant ulcer. Teeth, scarifying ulcers in the tongue, should be extracted. In many cases rough, ragged teeth produce disease of the tongue. In malignant disease I have over and over again had the teeth taken out, while the event has proved that they might as well have remained; but still, when there is a sharp tooth cutting against the edge of the tongue, you are always to look at it with great suspicion.

There is one other disease of the tongue, or rather a disease under it, which remains to be mentioned. A patient comes with a sore mouth, and you see the tongue pushed up to the soft palate. It looks as if the tongue were enlarged, but that is not the case, it is lifted up. You tell the patient to put his tongue against the incisor teeth, and on looking beneath you see a tumour. By feeling it you find fluctuation; you puncture it, and let out a quantity of transparent fluid, sometimes a teaspoonful or more. The fluid is a little glutinous, and consists of saliva. There has been an obstruction to the orifice of the submaxillary gland; the saliva has been secreted by the gland, but could not get out by the duct, and hence it has remained till it has formed a large tumour. This is what is called ranula.

You puncture the tumour with a lancet; the fluid comes out, and immediately the patient is well. You see him a week afterwards; he is quite well, and there is the saliva flowing out of the orifice you have made with the lancet. But you see him a month afterwards, and the tumour has re-appeared, the orifice has healed, and the tumour becomes as large as ever. All you want is, to get a permanent orifice from the bag into which the duct has been converted; but that is a very difficult matter. I have tried to effect it in various ways. I have punctured the bag, and then touched the edge with caustic potassa to prevent its healing. The patient has gone on very well so long as it did not heal, but as soon as I have left off applying the caustic, the orifice has closed. I have introduced a tenaculum into the bag of the ranula, and cut away a piece sufficiently large to admit the finger; the patient has then continued well for a longer time, because the part takes longer to heal, but contraction takes place, and the patient is bad again. I have run a seton through, and the patient has then gone on well for a considerable time. I have introduced a gold or silver ring, and kept that in as a seton. If the seton be kept in a considerable time, it seems to effect a permanent cure; but even that fails, and you have to perform the operation two or three times. I know of nothing better than the use of a seton, and I believe that it is better made of metallic substance than of silk. It does not so soon ulcerate its way out, and if it remain in for a long time, the edges of the orifice through which the seton is introduced may become covered with mucous membrane. If you introduce a silk or india-rubber seton in the back of the neck, after a great length of time a sort of skin forms on the inner surface of the canal; there is a discharge of matter; and when you take away the seton, the part in which it lay remains pervious. So if you keep a seton in a ranula for a very long time, the opening may remain pervious. The advantage of a metallic over a silk seton is, that it does not ulcerate its way out so soon, does not get putrid in the mouth, and therefore may be kept in for a longer time.

NON-MALIGNANT TUMOURS OF THE TONGUE.

In my last lecture I spoke of diseases of the tongue. I should have mentioned that other kinds of tumours than those I there described occur in that organ, just as they do in other parts of the body. Their formation in the tongue is not a frequent occurrence; nevertheless, you meet with them sometimes. A gentleman came to me with a tumour of the tongue, which was distinguished from common scirrhus by its being further from the surface, and very distinctly circumscribed: still, from the hardness of the tumour, I was led to suspect that it might be of a malignant nature. Had I found the same kind of tumour in the female breast I should have said that it was scirrhus; but as it had not the character of common scirrhus of the tongue I entertained doubts upon the subject. As an experiment I gave the patient tincture of iodine, eight or ten drops three times a day, gradually increasing the dose to twenty dops. After taking this for a short time the tumour appeared reduced in size; and on continuing the medicine for some time longer it was still more reduced, and it ultimately disappeared entirely. What the nature of the tumour was I do not pretend to say. I may mention one circumstance connected with this case, by way of putting you on your guard as to the use of tincture of iodine. The patient wished to go into the country, to which I gave permission, provided he would have a medical attendant to look after him while taking this remedy, adding that I could not sanction any patient of mine taking this medicine except under medical observation. He took the iodine without placing himself under medical care; and its action not being properly watched, he one day had a paralytic stroke. He instantly left off the medicine, and he ultimately recovered. This is only one case of many which I might mention, to show that iodine often produces powerful effects on the nervous system, and that it is not to be taken—at least in large doses—without considerable caution. I remember seeing a patient who had a large

elastic tumour, or some fluctuation in the tongue, of considerable size, apparently as big as a nutmeg. It was perceptible chiefly on the lower surface of the organ. The surgeon, under whose care the patient was, divided the tongue over the tumour to see what it was, and out came a cyst containing fluid—I suppose an hydatid. The patient got well. These observations are intended to finish the subject to which I before called your attention.

long as I acted in accordance with these views, I was meeting with erysipelas at every turn of my practice. Many years have now elapsed since I became convinced that these doctrines are erroneous: that an operation is a shock to the system, making a great demand on the vital powers: that the effects of this shock are often much aggravated by loss of blood: that a very scanty diet actually makes the patient more liable to certain kinds of inflammation than he would be otherwise; and that our rule of practice ought to be rather to sustain his powers by allowing him wholesome nourishment, and not to add to the influence of other depressing causes that still worse one of starvation. I assure you, and I assert it most positively, that if you attend to the rule which I have just laid down, although you may not prevent erysipelas altogether, you will find it to be a rare instead of common occurrence; and I can scarcely express to you how [illegible] greater has been the comfort of my life, and how much less [illegible] I have had for professional anxiety, since I altered my [illegible] n practice, than was the case formerly.

Let me not, however, be misunderstood as recom[illegible] ellular the subjects of operations are to be crammed with [illegible] ned pus. or that wine and porter and brandy are to be [illegible] hue; but criminately administered. As I have already [illegible] ty. Mortithere are some individuals who require to be [illegible] es place to a moderate system of diet than that to which the [illegible] htful changes accustomed, to prepare them for an operation [illegible] them, and the of cases, food should be given cautiously [illegible] have made on after the operation has been performed [illegible] her times the stances it will be necessary for the [illegible] lapse before symptoms, to make himself acquainted [illegible] termined. habits, and to be careful not to [illegible] gangrenous stimulants in such quantity as to [illegible] is always an heat of the skin; or to load the [illegible] 's constitution. easily digest. It is dangerous [illegible] ly [illegible] who been accustomed to a [illegible] j [illegible] f at once to supply a [illegible]

to a very scanty fare. An individual who has been in the habit of drinking nothing but water, will require wine and porter and brandy only in a very small quantity, or on extraordinary occasions; while another, who is habituated to the use of such stimulants, cannot be deprived of them more than a very few days, without suffering materially from the privation. I have often in this hospital found it expedient to give a gin-drinker a moderate quantity of gin even on the day immediately following some operation or dangerous accident.

Another inflammatory affection which sometimes arises as the consequence of an operation, has its seat in the veins which have been tied or divided. This occurs under circumstances very similar to those under which we meet with erysipelas; beginning some days after the operation was performed, and being frequently ushered in by a rigor, but being a more formidable disease than erysipelas, inasmuch as it attacks more important organs, and as it generally terminates in suppuration, and in a collection of pus in the cavity of the inflamed vessel. This disease when once begun is little under the dominion of remedies, but much may be done towards preventing its existence; and all the experience which I have had on the subject would lead me to believe that, like erysipelas, it has its origin in a low asthenic state of the system, and that those persons are especially liable to it who have been much lowered by hæmorrhage at the time of the operation, or by a too scanty diet before or afterwards. Arterial, in some instances, accompanies venous inflammation, and it is to be attributed to the operation of the same predisposing causes.

Another source of mischief after operation is what may be called *gangrenous inflammation*; that is, an inflammation which prcceeds almost immediately to a termination in gangrene and sloughing.

This assumes a somewhat different form in different cases.

A large gross fat man, who had been much addicted to drinking spirits, was admitted into this hospital, when I was assistant-surgeon, with an enorm[illegible]ducible inguinal hernia in a state

of strangulation. I divided the stricture, which was in the external abdominal ring, and did nothing more. The bowels acted freely afterwards, but on the third day the skin in the neighbourhood of the wound was inflamed, and, in some places, there were vesications on its surface. The inflammation extended rapidly to the rest of the integuments of the abdomen, and in two days more the whole of them were in a state of mortification. The patient died.

You meet with the same disease, though not exactly in the same shape, in what is commonly called 'a sloughing stump' after amputation. The stump inflames, and becomes swollen, painful and tender. You are compelled to loosen the bandages. A dirty serous discharge exudes through the dressings. After four or five days you remove the plasters and find not only that there is no attempt at union, but that the whole of the cut surfaces are in a state of gangrene. Sloughs become separated, but others are formed, and thus a rapid destruction of the soft parts takes place, leaving the bone projecting, deprived of periosteum, and dead in the centre.

In another case a diffuse inflammation extends along the cellular membrane producing an effusion of serum and ill-formed pus. At first the surface of the skin has only a dingy reddish hue; but the cellular membrane underneath has lost its vitality. Mortification of the skin follows in patches, and often takes place to a great extent. Sometimes the progress of these frightful changes is rapid, the whole of a limb being involved in them, and the patient sinking, from the impression which they have made on his system, in the course of five or six days. At other times the progress is comparatively slow, and a fortnight may elapse before the fate of the patient, as to life or death, is finally determined.

But whatever may be the exact character which the gangrenous inflammation assumes, you may be assured that it is always an indication of a low and depressed state of the patient's constitution. According to my experience, it occurs especially in those who have been habitually intemperate, indulging in the free use of spirituous or strong fermented liquors. In persons of such habits

it is always prudent for you to avoid the performance of an operation, except it be a matter of absolute necessity. If that necessity should exist, and symptoms of gangrenous inflammation should ensue, bear in mind that to treat it by blood-letting, and what are commonly called antiphlogistic remedies, is, for the most part, the way to make it more rapid in its progress, and more destructive. A treatment the direct opposite of this is what is really required; and with a view to prevention, the safest thing to do, in the case of a person of intemperate habits, is to allow him a certain quantity of his accustomed stimulus from the beginning, that is, even from the day of the operation.

But it is not in drinkers of spirituous and fermented liquors alone that we meet with this kind of inflammation. Persons of a broken constitution from other causes are liable to it also. Dr. Prout has observed that those who labour under diabetes are affected with carbuncle in a great number of instances. A gentleman labouring under diabetes received an accidental wound on one side of his head. Within a week he was dead, a victim to extensive inflammation and sloughing of the scalp. If he had been in health, such a wound as he received would have been of no consequence; but in the state in which he was, the removal of a small encysted tumour from his scalp would have been equally fatal. I have had the misfortune of losing three patients out of the great number on whom, in the course of the last thirty years, I have performed the operation of applying a ligature to internal piles. In each of these cases, on examination after death, I found diffuse inflammation and a sloughy condition of the cellular membrane between the mucous membrane of the intestine and muscular tunic, and also externally to the muscular tunic as high as the mesentery, and even between its layers. In one of them there was a diseased condition of the kidney, and the urine, which was carefully examined by Dr. Prout, was found to be loaded with albumen, and of a very high specific gravity (1·035). In the second there was a diseased condition of the kidneys also. The urine unfortunately was not examined, but you will know pretty

spinal cord; that is to say, softening, or ramollissement. The change that occurs at other times in the brain takes place in the spinal cord after a concussion of the spine. A very common effect of concussion is to injure its minute structure, and then to a greater or less extent it dissolves into a substance like cream. In this state of softening it first loses its natural consistency, but still retains the character of solid substance. By-and-by it becomes completely melted down to a substance like cream; the membranes can hardly be lifted out, and when placed in water the spinal cord floats, and the membranes remain by themselves. What produces this softening I cannot say. Some have said that it is inflammation, but certainly there are no marks of inflammation; there is no unusual vascularity preceding or accompanying the softening; there are no vessels loaded with blood, and, indeed, the parts are rather less vascular than natural. All that can be said is, there is some peculiar change of structure, the proximate cause of which we cannot explain, nor very often the remote cause. A young lady had this state of the spinal cord, and ultimately died from it. She was a healthy young woman in other respects, and there was nothing to explain it. There is one very common cause of it—not in young women but in men—men who rank among what is called the *better* classes, which, I suppose, means only that they are richer than others; at any rate they are not better in the point I am going to mention. There is a class of people, in London especially, who have no employment, who have large fortunes, and who spend half their time in intriguing with women; and in many instances you may trace the disease of the spinal cord to over-indulgence in sexual intercourse. Though we know more of the appearances after death than did the ancients, yet they very well described paralysis arising from this cause when they spoke of it as tabes dorsalis.

That is one cause of paraplegic symptoms, but from what other causes may they arise? A gentleman had formerly some pain in the back, or some symptoms which led a surgeon to apply a caustic issue in the neighbourhood of the spine. This was almost

A young woman had a small scirrhous tumour removed from her neck. On that very evening she had a rigor. On the following morning there was well-marked erysipelas of the skin of the neck, extending downwards over the whole of the anterior part of the chest. No proper reaction had taken place after the rigor; the pulse was small and weak, and the extremities were cold. In a few hours the whole of the skin affected by the erysipelas was in a state of mortification; and in less than forty-eight hours from the time of the operation the patient was no more. A poor girl, who came from the country to be admitted into St. George's Hospital, on her journey, had the skin of one breast slightly chafed by the whalebone of her stays. On the following morning she had a severe rigor, from the effects of which she never completely recovered. Erysipelas supervened, beginning where the skin had been chafed, and extending rapidly over the whole of the forepart of the chest. The skin thus affected became almost immediately gangrenous, and she died with it in a state of complete mortification in the course of three or four days from the commencement of the attack. Both of these cases occurred in the summer, when the heat was most unusually intense; and they taught me a lesson which I have never forgotten—namely, that operations which are not of an immediate necessity should not be performed when the temperature of the atmosphere is very much above the ordinary standard.

There is still another class of inflammatory affections to which the attention of our profession has of late years been much directed, consequent on accidental injuries, and on surgical operations, which I must not pass over unnoticed. The seat of these inflammations is not in the part which has been injured, or which has been the subject of the operation, but at a distance from it. A man has an injury of the head, and, when he dies some time afterwards, you find deposits of pus in the lungs, or abscesses of the liver. In another case there are symptoms of cellular inflammation and suppuration about the neck of the bladder after lithotomy; but death does not take place immediately: the case

is protracted; and before he dies, the patient suffers from swelling, inflammation, suppuration, and sloughing of the parotid glands; or there is a purulent deposit in each of the knee-joints. In other cases there are deposits of pus in the cellular membranes, or of serum, lymph, and pus, in the peritoneum or pleuræ.

Now it has been supposed by some that, in these cases, the secondary disease is always connected with venous inflammation, and that the circumstance may be explained by supposing that pus secreted by the inner surface of the veins is carried into the torrent of the circulation, and afterwards deposited, even without any inflammatory process, in some other and distant organ. I cannot, however, believe that this is the true theory of the disease. In a case of compound fracture of the right leg, in which the patient died at the end of a month with deposits of pus in the lungs and liver, and in the cellular membrane over the abdominal muscles, and near the left (or opposite) groin, the veins were most carefully examined everywhere, but no venous inflammation could be detected. In another man, who died after a surgeon had most injudiciously applied the caustic potash to the skin over the occiput, so as to make a slough of all the soft parts, and expose the bone itself, I had the opportunity of examining the body after death, and found the dura mater detached from the inside of the bone to the same extent as the destruction of the pericranium had taken place on the outside; and no trace either of venous inflammation in the injured part, or of suppuration on the surface of the dura mater; while the peritoneum was universally inflamed, and the intestines were agglutinated to each other by coagulated lymph. I might, if it were necessary, produce a great number of similar examples; but these are quite sufficient for my present purpose. Having now watched the progress of a great number of cases of this description, I am led to believe that these secondary inflammations are to be attributed not to the entrance of pus into the vessels, and the transfer of it when secreted in one part through the medium of the circulation to some other part of the body, but to the long continuance of a low febrile excitement of the

paper of his in the Transactions of the College of Physicians; but he gives no facts on which the opinion is grounded. It seems to have been a notion taken up by him without any facts to justify it. However, there is reason to believe that, under certain circumstances, disease of the brain may produce paralysis in the lower limbs before it produces it in the upper. I examined the body of a man who was paraplegic, and I found water in the ventricles of the brain, but no disease connected with the spinal marrow. That you may have disease, however, in the brain and in the spinal marrow, combined in the same individual, there can be no doubt. Some of those young men, who, from foolish habits, become paraplegic in the lower limbs, have also cerebral symptoms. There may be softening of the lower half of the spinal marrow, and of a good part of the brain. I think that if there is an entire absence of cerebral symptoms you have a right to conclude that the disease does not exist in the brain, but is confined to the parts below; if, however, the patient says he has double vision, if you find one pupil dilated and not the other, and there be pain in the head and giddiness, you have a right to conclude that there is disease in the brain; but still if there were absolute paralysis I should conclude that there was disease in the spine also.

The case which I am about to mention is a very remarkable one. About nine years ago I was sent for into Lincolnshire to see a gentleman who was paralytic in the lower limbs. The symptoms of paralysis had exhibited themselves eight years before, and at the same time there was pain referred to the epigastrium. The disease had now extended upwards, the arms were beginning to be affected, and there was also dilatation of the pupil of one eye; but at the commencement it was a case of regular paraplegia. Neither my advice nor that of anyone else did any good, and the disease was left alone. Ten years afterwards his wife was very ill, and he was brought with her to London. She came for medical advice; but his case being considered hopeless he did not consult anyone. He was now completely paralytic in his limbs and arms, he could scarcely speak, and he could only just swallow. He lay

expected in the common course of things to proceed to a purulent deposit, may, in some instances, be made to terminate in resolution. They furnish also an example of a low inflammatory affection in a person accustomed to the use of spirits, being relieved, not by bleeding, antimonials and purgatives, but by a directly opposite method of treatment; namely, the prudent exhibition of stimulants and nourishment: thus confirming the observations which I have already made on this important point in surgical practice.

Besides the various sources of danger after operations to which I have just called your attention, and which are all connected with inflammatory action, there are others not less important which are connected with derangement of the function of the nervous system.

As a wound made accidentally may be followed at the expiration of ten days or a fortnight by symptoms of tetanus, so that made by the hand of the surgeon may produce the same unfortunate result. You must not, however (in this climate, at least), allow the apprehension of this terrible disease to enter into your calculation. It is just as probable that it will occur after the most trifling operations, such as you perform daily, as after those which are most difficult and complicated; and the chance of this occurrence after either the one or the other is so very small, that for all practical purposes you may regard it as none at all. If you were to take account of such small chances as this, you would not take a journey on horseback for fear of being thrown off your horse and killed; nor would you venture to travel in a mail-coach, or in a railroad-carriage. Besides, we have no such knowledge as will enable us to say in what particular case it is most probable that tetanus will occur, or how it is to be avoided or prevented.

You have heard of, and most of you have witnessed, a disturbed state of the nervous system which sometimes follows local injuries, and to which M. Dupuytren has given the name of traumatic delirium, though that of traumatic mania would be a more

appropriate appellation. This disease may follow the injury done by an operation as well as that which arises from an accident. The case is always replete with danger, and not unfrequently, even in spite of the most judicious treatment, the termination of it is fatal. It is not my intention to occupy your time by giving an exact history of the symptoms and progress of the disease; these being, I doubt not, well described in the systematic course of lectures delivered in this theatre by Mr. Cæsar Hawkins. It is sufficient for my present purpose that I should observe that the symptoms vary somewhat in different cases, and that the degree of danger varies also.

Now, according to my observations, the cases in which this disturbed state of the nervous system follows accidental injuries and operations in the London hospitals, are chiefly those of individuals who have habitually indulged too much in the use of fermented and spirituous liquors, and especially of dram-drinkers; and in the majority of these cases, the symptoms immediately follow the sudden abstraction of the accustomed stimulus. A man who has been accustomed to drink his bottle of wine daily, with the addition, perhaps, of some porter at his dinner, or to swallow daily one or two pints of gin or brandy, should, after an operation (unless there be some very potent reason against it), be at once allowed a moderate proportion of his usual liquor, and, perhaps, a still larger quantity afterwards: or if attention has not been paid to this in the first instance, and the symptoms of traumatic mania have begun to show themselves, wine, or gin, or brandy, with the addition of the acetate or muriate of morphia, should be immediately exhibited with a view to arrest its progress. In some few cases of persons whose habits have predisposed them to this disease, there may perhaps be inflammatory symptoms of such a nature as to justify or demand the use of the lancet, and other methods of depletion, in the first instance. This treatment, however, will only make the patient more liable to traumatic mania afterwards, and his life will certainly be sacrificed unless you exercise a sound judgment in choosing the exact moment of

time in which you shall alter your treatment, and substitute the cautious exhibition of stimuli and opiates for that which you had employed previously.

Nervous symptoms, which are essentially, though not in all minute particulars, of the same character as those which arise in persons who have been too much addicted to strong potations, may arise under other circumstances. In the museum of this hospital you will find the lower portion of a tibia divided longitudinally, and exhibiting the cavity of an abscess in the cancellous structure immediately above the ankle. I shall give you briefly the history of this case, as it will serve to illustrate our present inquiry, and is of much interest. The patient was a young man about 24 years of age, and he consulted me rather more than eighteen years ago under the following circumstances. He had an enlargement of the lower extremity of the right tibia, with pain, which was constant, and at all times severe; but he was subject to paroxysms, in which his sufferings were described as being most excruciating. These paroxysms recurred at irregular intervals, confining him to his room for many successive days, and being attended with considerable constitutional disturbance. He had consulted many surgeons, without deriving any advantage from their advice. The remedies which I prescribed were of no more avail than those which he had taken before; and when I proposed to him that he should lose his limb, he gladly consented to the operation. The preparation to which I have referred you sufficiently explains the nature of the disease; but the termination of the case is that which is most to our present purpose. The patient bore the operation with the utmost fortitude, so that a bystander could not have supposed that he suffered the smallest pain. Immediately afterwards, however, he became restless and irritable, and too much disposed to talk. Unfortunately, in the evening there was hæmorrhage from the stump, which ceased on the removal of the dressings and coagula, though not until a considerable quantity of blood had been lost. During the night he had no sleep, and on the following morning he was restless

and incessantly talking, with a rapid pulse. The symptoms became aggravated. There was no disposition to sleep, and the pulse became so rapid that it could be scarcely counted. Until the third or fourth day the tongue remained clean and moist; and afterwards it became dry and somewhat brown. There was constant delirium. The pupils were widely dilated; and the sensibility of the retina was so completely destroyed, that the glare of a candle was not perceptible, even when held close to the eye. Death took place on the fifth day after the operation. No morbid appearances were detected in the *post-mortem* examination.

There can be no doubt that the immediate cause of this patient's death was a disturbed state of the nervous system consequent on the shock of the operation, but probably aggravated by the secondary hæmorrhage afterwards; and it is reasonable to suppose that the state of constant misery and excitement in which he had lived for many years, and which, as I was informed, had rendered his temper unusually irritable and capricious, made him more liable to be thus affected than he would have been otherwise.

In other cases, a corresponding predisposition may be traced to an originally imperfect construction of the nervous system, showing itself, as the patient attains the age of puberty, in the form of aggravated hysteria; or perhaps, at a more advanced period of life, in that of mental derangement. I have seen several remarkable cases of severe nervous symptoms following even small operations in the former class of patients. The history of such cases would of itself occupy a lecture, and it is sufficient for my present purpose that I should call your attention to them, and that I should state, as the result of my experience, that those who labour under the disease of the nervous system are among the most unfavourable subjects for all kinds of operation. Even in the case of a young woman who is more than commonly hysterical, I advise you to proceed with caution. Her powers of life are weak; she will ill bear any considerable hæmorrhage; and she is more liable than others not only to a dangerous disturbance of the nervous system, but also to those low inflammatory affections

consequent on operations, of which I have spoken formerly. I do not say that you are never to recommend an operation to persons of this description; but I am satisfied that you ought to have a very sufficient reason for doing so; and I advise you, if an operation be determined on, to make every possible provision against much loss of blood; and to endeavour to sustain the powers of the system by the careful administration of nourishment, and even of stimuli afterwards.

I need scarcely tell you, that, as a general rule, the existence of organic disease in any organ that is concerned in the vital functions should be regarded as a great objection to a surgical operation. To perform the operation of lithotomy where the existence of a stone in the bladder is complicated with disease in the kidney, is almost a sure method of shortening the patient's life. To lay open a fistula of the rectum where there is also disease of the lungs, will probably cause the tubercles and vomicæ of the latter to become more rapidly developed. Nothing but the more pressing necessity can justify an operation under such circumstances. Still, such necessity may exist; and when it does exist, you are not to shrink from the responsibility of doing what is required. You may be called to a patient who has an aneurism in the popliteal artery and in the aorta at the same time. To tie the artery in the thigh, where such a complication exists, and where there is nothing in the state of the popliteal aneurism to cause immediate danger, would be madness; but to hesitate to do so, if it were on the point of bursting, would be cowardly and cruel.

Gentlemen, in thus describing to you the various sources of danger after surgical operations, my object has been not to diminish, but to increase your confidence in operative surgery. The surgeon who goes blindly on, not looking at the evils which may probably or possibly ensue, is a mischievous member of society; while he who proceeds with circumspection, and makes it his business to learn what those evils are, will know how to avoid them, and although he cannot always command success,

lower part of the cord: it was reduced to the consistency of cream.

Cases of paraplegia affecting the upper are not nearly so common as those affecting the lower limbs; but we see them every now and then. The opportunities of post-mortem examination, of course, are rare, but I have conducted two, and from these I should conclude that the seat of the disease is generally to be found in the cervical portion of the spinal cord.

Caries of the spine produces paralysis of the parts below, as you are well aware, and so far there is a resemblance between the symptoms produced by caries of the spine and those diseases of the spinal cord to which I have adverted in this and the preceding lecture. Owing to this similarity between the symptoms of the two diseases, cases of paraplegia are continually supposed to be cases of diseased spine. This, however, is a great error, because the treatment proper in the one case is quite improper in the other. Where there is caries, it is necessary that the patient should remain a year or two in a recumbent posture, but that is not requisite in cases of disease of the spinal cord, and probably is sometimes injurious. In many cases of caries it is right to make caustic issues, apply setons to the back, and adopt counter-irritation; but, where there is disease of the spinal marrow, if these remedies are not useless, yet they torment the patient, make a great demand on his bodily powers, and besides exhausting his strength, are sometimes absolutely injurious. Over and over again have I seen cases of paraplegia depending on disease of the spinal cord, treated with caustic issues, seton, and blisters, but without being productive of the smallest benefit; on the contrary, they are generally prejudicial, independently of which they make the patient miserable.

But how are we to distinguish cases of caries of the vertebræ from cases of paraplegia depending on disease of the spinal marrow? In the former there is generally pain in that part of the spine that is affected. There is one kind of caries, which I call rheumatic caries of the spine, in which the pain is very severe, and in

INFLAMMATION OF THE VEINS.

INFLAMMATION of the veins is a very common disease, and was not much noticed till within the last forty or fifty years; but of late it has been the subject of very general investigation. One description will not apply to all cases, as it occurs under various circumstances, arises from various causes, is attended by different symptoms, leads to different results, requires, of course, different treatment, and has the additional characteristic of sometimes being not at all dangerous, and at other times extremely so. Let us, then, take the disease in its simplest form, for all diseases should be thus studied. I address this observation more particularly to those gentlemen who are just commencing their studies; I recommend them to study the simpler forms of disease first, namely, those cases which more advanced students look upon as of trifling importance, for, by thoroughly understanding these, you will be enabled more readily to comprehend those more difficult cases which you will meet with afterwards. Suppose, then, a man has varicose veins of the leg; he takes too much exercise; you therefore rest him; you also purge him, and bathe the parts with cold lotions. The pain probably soon ceases, and very slight constitutional disturbance results. Now, if from any cause this man should die, and an opportunity occurs for examining the body, you will find the veins which, during life, felt hard and like cords beneath the finger, filled with lymph, so as entirely to have obliterated their cavities. This form of the disease is not dangerous; it seldom leads to any bad result. Then there are cases where inflammation of a larger vein takes place, independently of wounds or mechanical injury, and these also are not generally dangerous. Let us suppose an ordinary case. A man takes too

of these diseases from the other, in the living person, besides which the three may be combined together, or there may be one first, and the others may supervene.

However, let us suppose that there is a case, such as I have just described, of inflammation of the membranes of the spinal marrow. The patient comes to you with a severe attack of dreadful lumbago, and by-and-by he states that there is numbness in the legs, and then difficulty in moving them. In this case you may be pretty sure that there is inflammation of the membranes of the lower part of the cervical cord. How is that to be treated? In the first place take blood by cupping, from the loins, and repeat it according to circumstances. Begin by purging the patient, clearing the bowels well out—a right plan to pursue in all cases of inflammatory disease. Then put the patient under the influence of mercury, exhibit calomel and opium, and treat him as you would a patient labouring under pleuritis or iritis. If I am not much mistaken, I have several times seen the disease stopped by the exhibition of mercury. I have known a patient labouring under numbness of the limbs and incipient paralysis, recover when the gums were made sore by mercury. But if you are called in at a late period, when the inflammation has subsided, and the paralysis consequent on it remains, even then you cannot do better than put the patient under a course of mercury, though not such a course as you would employ in the beginning of the disease. You must not now exhibit two or three grains two or three times a day, but a mere alterative course—five grains of Plummer's pill night and morning—the eighth of a grain of bichloride of mercury twice a day, in addition to which you may apply blisters to the lower part of the back.

The result will vary in different cases according to the time at which the treatment is commenced, or according to the intensity of the disease. In some cases you may obtain a perfect cure under the use of mercury; in others, an imperfect one. A gentleman riding in a second class railroad-carriage was exposed to a draft of cold north-easterly wind from one to two hours. The next day

case after death, resulting from acute inflammation of the veins, you will find the veins filled with coagulated blood mixed with lymph, and I am disposed to believe that, when the coats of the veins become inflamed, they give the blood contained in them a tendency to coagulate. It is not the disposition of blood when effused to coagulate; for we know that it may be effused into the tunica vaginalis, and remain there a long time without its being coagulated. You have another familiar example of this in the leech, in which the blood does not coagulate; but when it is out of the body, stir it as you will, it will coagulate. When inflammation of the veins runs very high, it becomes a dangerous complaint. It was the practice of Sir Everard Home to put a ligature on the vena saphena in these cases, but its effect was the production of increased inflammation. Mr. Abernethy recommended cutting the vein in two, and I being at that time much less experienced than I may claim to be now, tried his plan, but to my dismay, in a few days the man was dead, with violent inflammation of the veins. The example, therefore, is not one to be followed.

I shall now describe to you some of the *morbid appearances.* These are different according to the period at which the patient dies; sometimes you find a red blush on the inner surface of the vein, and nothing more, this perhaps extending upwards towards the heart, and also downwards towards the capillaries, sometimes even to a greater extent in the latter direction than towards the heart; I do not by this mean that it runs a greater distance, but that it runs along a greater number of branches, because when it ascends, it confines itself to the trunk, and does not enter the branches. In these cases it looks like a red stain, with a very little lymph effused on its surface; and with nothing more than this I have known the patient to die in a few days. But if he does not die other changes take place. You find the blood coagulating in the veins (I say coagulating, for there is fibrine mixed with colouring matter), but this coagulum is evidently mixed with blood which has been effused, and sometimes you find a portion broken down, dissolved, and looking like pus, although I

have not satisfied myself that this is pure pus. I have seen coagulum in the two ventricles mixed with this liquid-like pus, but it will not stand the test of a close examination, although it resembles the pus found in an aneurismal sac. If, however, the disease is allowed to go on, pure pus is formed, but then the vein becomes totally obliterated below, and the 'vis a tergo' is wanting. In the greater number of cases where lymph is effused into the cavity of a vein, you will find pus secreted on the side nearest the heart; and although the pus at first puts on a doubtful appearance, if it goes on, there will be actual, pure, genuine pus, unmixed with anything else; and then another portion of coagulable lymph will be effused between the pus and the heart, thus forming a complete barrier to its further progress. This second layer of lymph, however, is not unfrequently wanting; but even then, it does not follow that the pus shall mount up to the heart; for you will remember there is an obstruction also formed by the effusion of lymph previous to the formation of pus; so that the 'vis a tergo' to force it forwards is wanting, and in this case it will form a regular abscess in the vein. The vein may be filled with pus for two or three inches of its length, or pus and lymph, pus and coagulum, or all three mixed together. If this remain, you have suppuration taking place, and then you get, secondly, abscess round the vein, which is entirely destroyed; so that, if the patient dies, you find merely very indistinct remains of it on examination. This abscess will soon make its way under the skin, and present itself externally. These, then, are the principal morbid appearances which present themselves after the inflammation of a vein. There are some others of minor importance, but these I shall dismiss for the present.

I come now to speak of the *symptoms of venous inflammation.* Now, let us suppose there has been a wound in the vena saphena, or in the groin; the patient has violent headache; shivering, the pulse very quick; tongue dry; next day the pulse so rapid that you cannot count it; another attack of shivering and intense headache; great agitation of manner; and an expression of anxiety in the countenance; the tongue will get black, as if he were in the

last stage of typhus, and probably the next day the patient will die. This is not an overdrawn picture, for I have known several cases run this rapid course. But you will also find tenderness above and below the wound, the skin being so tender that the patient cannot bear it to be touched, and yet the pain will be relieved by putting on a flannel bandage, because it prevents the inflamed veins becoming distended. If the symptoms are less urgent, there will be shivering; an anxious countenance; brown tongue; sallow appearance of the skin; disturbance of the mind, but to a less degree than in the former; and in these cases, where the symptoms are not so urgent, although the disease may go on for a long time, nevertheless the patient will ultimately recover. In these cases, where the disease persists for a long period, the local changes which I mentioned become manifest, viz., redness in the course of the vein; discharge of pus from the part where the ligature was applied; hardness of the vein, and swelling over the part which has been injured; and the abscess forms and breaks, and you will be able to press out the fluid from it even for several inches. If the disease has occurred after bleeding from the arm, several abscesses may form a few inches distant from each other, reaching up as high as the shoulder. But even cases which have gone on to the formation of these secondary abscesses may recover. The abscesses may be laid open; they will then go on secreting purulent matter for a long time, but ultimately granulations will form on the surface, and the patient will be restored. If this were all, there would be no reason why the majority of cases should not recover; but I have not yet described the principal thing which prevents this fortunate consummation. The patient goes on suffering the train of symptoms I mentioned before, viz., shivering, headache, &c., which appears to be connected with venous inflammation in the first instance; but as the abscesses come forward, or as the inflammation subsides, the constitution does not recover, but appears to suffer more. As the local symptoms subside, you might expect the constitution to recover itself; but instead, you find the febrile excitement con-

tinuing, with an anxious countenance, sallow tinge of the skin, fresh attacks of shivering, and pains in other parts of the body. One will complain of pain in the opposite shoulder, another in the knee, whilst a third will have a short cough or pain in the liver. In fact, there will be a variety of symptoms present in various parts of the body; and if the patient dies, you will find that actual disease has taken place in them. In one patient you will find both knee-joints filled with a reddish fluid; another will have a deposition of cheesy matter in the liver, which goes on to abscess; a third will have it occurring in the lungs, whether beginning in the air-cells or not I know not; and these go on to abscess. You will also find effusion of fluid into the ventricles of the brain; effusion of lymph sometimes into the pericardium; inflammation of the pleura, and effusion here also. It is said the inflammation has been traced to the vena cava, but I do not think this observation correct. Mr. Hunter threw out the hint as if it were a possibility, and later writers have mentioned it as a matter of fact. Then you have fluids deposited in various parts of the body, and you may have fluid, and even lymph without pus. Venous inflammation may be the consequence not merely of a ligature or wound affecting a venous trunk, but it may arise in this way. A man has erysipelas, which is a disease of the integuments. This may extend into the cellular membrane, producing sloughs there, and abscesses under the skin, and so you have abscesses and sloughs mixed together. Now, in this case, when the patient dies, you will find the veins have participated in the erysipelatous disease. A man comes into the hospital (a gin-drinker) with a wound in the leg, and he has inflammation of the cellular membranes. The man dies, and when you examine him, you find pus deposited in the cellular membrane. Here again you have the disease of the veins. Inflammation of the veins also not unfrequently takes place after child-birth. Inflammation of the veins of the uterus, extending into the hypogastric, internal iliac, and cava veins, sometimes occurs in these cases. Here, also, if the patient dies, you find the veins filled with pus, and there is swelling of the

lower limbs. In this way we account for 'phlegmasia dolens,' the white swollen leg. It is supposed that this swelling, which takes place after child-birth, is the result of venous inflammation; but if it is, it must be said that venous inflammation does not usually assume the violent character we have just described, but generally that milder form which I mentioned first; but very few of these cases occur where death follows. Indeed, Sir Charles Clarke told me he never saw a case which terminated fatally.

At our last meeting I began the subject of venous inflammation, and if I recollect rightly I explained some of the more remarkable circumstances which occur towards the termination of the disease —I allude to the inflammation showing itself in different parts of the body. Now by this I mean not merely those parts which are in the line of the inflamed vein, but parts quite distinct from, and having no connection with, the original seat of the disease. Thus, a man may have inflammation of the arm, and presently he will be attacked with inflammation of both knees, and the cartilages will be entirely absorbed; or again, abscesses may form in any other part of the body. An interesting pathological question is, 'Where there is venous inflammation, why should there be these deposits of pus in different parts of the body?' It is the opinion of some persons that pus deposited in an inflamed vein is carried into the general circulation. M. Cruveilhier has made some experiments on this subject which seem to prove that pus may be formed in an inflamed vein without being absorbed. Mr. Arnott says, that although pus may not be produced in the vein, still there is a diseased action going on, by which a secretion analogous to pus is formed, which becomes mixed up with the blood. But neither of these declarations can be considered as established, and I do not think it is at all necessary that there should be a morbid secretion of pus to produce these symptoms. A man has an attack of fever without your supposing that there is an affection of any particular organ or region of the body, yet what is the result? In one man you will find ulceration taking place in the jejunum or ileum; in another there will be a deter-

You will be consulted about children who are paralytic. There is a peculiar paralytic affection of the limbs that occurs in children who are very young. The child generally has a fit at the time which has terminated in water in the brain, and some time afterwards one or more limbs become paralytic, or one set of muscles in a limb and not the other. In some cases the muscles at the back part of the leg become affected, the heel is drawn up, and the child grows up with contraction of the foot. It is necessary at some time or other to divide the tendon and relieve the contraction. Sometimes all the muscles of the lower limb become paralytic, and in other cases there is paralysis in one arm. I know a gentleman who, when he was an infant, had some affection of the brain, in consequence of which, one arm became paralytic, and has continued so through life. Partial paralysis is often the cause of squinting; some of the muscles over the eyes become paralysed, and not the others.

I saw a child with a very singular paralysis of the following kind:—It seemed that the pharynx was paralysed, or some of the muscles external to it, which are necessary to deglutition, for it was with the greatest difficulty that he could swallow. It was evidently a paralytic affection which had come on suddenly without inflammatory symptoms. I never heard the result, but I suppose the child must have died from starvation. It could scarcely take sufficient food to enable it to grow up. I really do not know what is the change produced in the brain in these cases. It does not appear to be of any great extent, and does not extend afterwards.

I need not state that every part of the body is represented in the brain. As the mandates of the will go from the brain to every muscle, so, from every part of the body, sensations are communicated to the brain, and injury to that part of the brain which belongs to a particular muscle may produce paralysis. The paralysis having once taken place, it seems to go no further. It does not destroy life; but in most cases, being once established, it remains through life. The patient is never very well; he may

in these cases matter has been found between the dura mater and the bones. Some persons would have said, perhaps, there was in this case inflammation of the veins, which you have overlooked, and purulent matter has got into the circulation, but this is no at all probable; because it is not pus always which is effused, sometimes it is merely serum, and sometimes again you will have this secondary deposition of matter set up where there is no suppurative inflammation at all. A man had an injury of the head, and the surgeon applied a caustic issue which produced a large slough, so that the bone was exposed; in a short time the man died: previous to his death, however, he had a set of curious symptoms, for which we could not account: such as swelling of the abdomen, and a puffiness about the body; and when examined after death, we found there had been considerable peritoneal inflammation. The head was also examined, and it was found that where the caustic had been applied, the bone was dead, and of course, the dura mater separated from it, and a little pus was found between them. 2ndly. A girl suffering from pain in the head, had a caustic issue applied; she died of inflammation of the lungs, and it was found that where the caustic had been applied, the bone was dead; there was slight sloughing of the part and effusion into the brain. 3rdly. A man was admitted into this hospital, who had been beaten about the head with sticks; he remained here till he died, and on examination, it was found that small particles of pus were deposited between the bone and dura mater; there was also a gelatinous matter mixed with these particles. Now, to say there was inflammation of the veins in all these cases, would be absurd. The view I am inclined to take of these cases is, that there is a certain disturbed state of the constitution induced, which has a tendency to end in the formation of pus; for you see that in persons who die from symptoms analogous to those we have just enumerated, there are always to be found in the extremities, what are called critical abscesses, depositions of pus in the cellular membrane. A gentleman had a violent cold, and was attacked with inflammation of the vena saphena, and died. The result

here was rapid, and shows the importance of careful attention to the local disease, though still, as I said before, as a general rule, and in the majority of cases, this disease is not dangerous. The treatment must depend upon circumstances. But suppose you were called to a patient with symptoms such as we mentioned in our last lecture (shivering, sallowness of complexion, brown tongue, and slight derangement of the mental functions), you would apply leeches in the course of the vein; retain the limb in the recumbent posture; keep the bowels open, and give moderate diet. But the principal remedy is mercury, in moderate doses, continued at stated intervals till the gums are slightly affected. Calomel gr. ij., or hydrargyri bichloridi gr. $\frac{1}{8}$, bis in die, is, I think, the best mode of administering the remedy. Where there is much inflammation of the leg, and considerable swelling, you may relieve the patient considerably by puncturing the part with a common needle; the fluid will escape rapidly from the cellular membrane. Mind, I do not say this will cure the disease, but it will relieve it considerably. I am seeing a gentleman now who had, some years ago, an attack of venous inflammation, and the leg was so much swollen as to threaten the bursting of the skin. In this case I punctured it in the manner just described, and afterwards he did it himself, and always found considerable relief from it. This mode, of course, gives greatest relief when the serum is very thin; sometimes it will be a comfort to the patient to wear a bandage as a support to the parts, but it should be *flannel*, and never applied *tightly* with the view of preventing the swelling. Once I saw a lady who had that form of swelled leg

E. Home tied the vena saphena in three cases, but they all died except one, who being a very strong man, was bled very freely, and here the practice succeeded beautifully, and the venous inflammation almost entirely subsided. But sometimes this disease is attended with low symptoms, the pulse being weak and feeble, and there is great prostration of strength. In such a case as this, it is evident you could not take blood largely; you must, therefore, be content to apply leeches to the part. Warm fomentations seem to answer better than cold applications; but this may be regulated by the feelings of the patient. Occasional purging and low diet will, of course, be most proper. Very frequently this is a consecutive disease, as it may follow an attack of erysipelas. Of course, in this case, and when it comes after cellular inflammation, the patient will not bear depletion. It is a question with some whether or not mercury is beneficial in these cases. In those which I mentioned of Sir E. Home's, which occurred when I was house-surgeon to this hospital, it would doubtless have been extremely beneficial, but the administration of the remedy at that time was not thought of. In those cases where there is great prostration of strength, I doubt the propriety of its use; but where this symptom is absent, it may be employed with advantage. It, however, requires a good deal of discrimination on the part of the surgeon, to determine when it is, and when it is not right to put the patient under the influence of mercury.

You will find, gentlemen, after venous inflammation, the limb is generally left swollen, and the veins are what is termed 'varicose.' Can anything be done here? will a bandage do good in these cases? To a certain extent it will; but let your patient walk about, and you will find that the collateral vessels will thus become dilated so as to make up for those which have been obliterated. In some cases, the swelling will entirely disappear, whilst in others, it will remain, to a certain extent, the remainder of the patient's life. I spoke of the disease in connection with varicose veins as though it only occurred in the lower extremities, but I saw it in the forearm of a patient a very short time ago,

produced, as I think, by bleeding. In cases where a secondary deposition of pus takes place, very few, I think, recover, as the deposition is scarcely ever confined to one part of the body; and if you let it out in one part, there is no method of preventing its recurrence in another.

When venous inflammation has gone on some time, it is quite beyond the reach of art. But you should always bear in mind the original cause of the disease, and also the patient's previous mode of life. Many of you will recollect the case of the man last year, in whom I tied the external iliac artery; after the operation, there was a quick, irritable pulse, with pain in the opposite shoulder; and these I attributed to the man being debarred his usual quantity of stimulus. After bleeding him once, and finding he was no better, I allowed him a quantity of gin daily, and if I had not done so, I think there would have been the secondary formation of matter, as in some other cases I have described. Those persons who drink large quantities of spirits, are most liable to this deposition of matter, and, I think, it is owing, in a great measure, to their being deprived of their usual stimulus; and in these cases you will sometimes succeed in arresting the disease by allowing the patient a certain portion of that kind of stimulus to which he has been accustomed. The general rule for treating inflammations, is by depleting remedies;—but there is another plan. Suppose a man gets a piece of glass in his arm; you would of course, in the first instance, remove it if you could, just as in chancre you give mercury to remove the cause which produced it. On the very same principle, in those cases where you have low symptoms coming on in cases of venous inflammation, produced by the withdrawal of the usual quantity of stimulus, your first plan should be to restore to the patient at least a portion of that stimulus. Let me take this opportunity of observing, that mischief is not unfrequently produced by violent changes in the patient's diet. If a man who has been accustomed to drink gin, or other stimulus in large quantities, meets with an accident, and you take him off that stimulus, you will have the injury going to a much

greater extent than it would if you had not done so. And I am certain that I have been more successful in the treatment of persons who have been accustomed to drinking or high-living, by merely diminishing their quantity, than when I have had recourse to antiphlogistic treatment.

ON POLYPI OF THE NOSE.

UNDER the name of polypus of the nose, although many affections have been confounded, I mean to include simply a peculiar excrescence of the Schneiderian membrane, which is not malignant. This simple polypus is much the more frequent among the higher classes of society, and is most common in *men*. It seldom occurs before puberty. I am not able to connect it with any particular habit. It is common among the Portuguese, and attributed by them to their snuff being adulterated with ground glass. It may be so, but I have not observed that snufftakers in this country are particularly liable to it, though I believe that snuff is much adulterated here—as much, indeed, as medicine.

The tumour is generally attached by a thin neck to the Schneiderian membrane, or by a narrow pedicle, or a long, thin membrane, continuous with the Schneiderian, but less vascular. The polypus is very smooth, and but little vascular, though sometimes vessels burrow into it. It is gelatinous in density, and appears to consist of coagulated albumen. In a few instances there is but one polypus; but commonly there are two or three, and frequently clusters, so that you can scarcely count them. The colour, which it is essential to notice, is pearl-like, or white, mixed with brown

stage that polypus exists, or is occurring, are merely an unnatural secretion of mucus; a great desire to blow the nose, such as may arise from common catarrh; but in catarrh the secretion lasts for a shorter period, whilst the discharge from polypus does not subside, on which account you may suspect incipient polypus. When bone, for instance, is affected, you have pain in the forehead, but there is none in polypus. The smell is affected, the patient fancying, perhaps, that he smells odours which do not exist; or the sense of smell may disappear, which is more common; the taste at the same time is injured, if not destroyed. These symptoms increase as the polypus gets larger, with obstruction of the middle meatus of the nose, and then of the inferior meatus. Respiration through the nose is imperfect, and at last the patient breathes only through the mouth; this is troublesome, especially at night, because the using the jaw in the day acts on the salivary glands; but at night the open mouth is always dry, and the tongue becomes hard, like a board. At first there is no difficulty of blowing the nose, though afterwards there is, and the mucus is blown down the pharynx. These symptoms may, in their progress, occupy a year, or many years. If neglected, the polypus grows larger, in becoming more solid, and the base almost cartilaginous; sometimes it is large enough to hang down outside. It varies with the weather, swelling in a moist atmosphere; it is, in fact, an hygrometer to the patient, having a smooth surface and an opal, semi-transparent appearance. It may project, backwards, into the pharynx behind the soft palate, and then it may occasion giddiness, from pressure on the internal jugular vein, though persons generally procure surgical assistance before the case is so far advanced. But sometimes the disease is neglected, and I remember a man in this hospital who had had a polypus removed, but which renewed, and when he came was enormous, projecting from the nostril under the skin of the face. The patient died of cerebral symptoms, and after death there was found effusion in the ventricles of the brain, from the pressure of the polypus. I have seen also, a boy, 16 years of age, having a polypus of an

enormous size, not less than my fist, hanging down at the back of the pharynx, which could be felt in the mouth, and which pushed out the ossa nasi, giving him a nose broad enough to cover half his face. I lately saw polypus cause absorption of the os unguis; it extended into the orbit. It was removed, and I believe, successfully.

In the early stage, the existence of polypus is doubtful, if you cannot see it; but, by-and-by, you can discern it by dilating the nostrils with the forceps, near the window, and the more easily if the sun shines. If large, you can tell how far it extends; if it extend into the pharynx, by putting your finger into the mouth; if it extend to the brain, you may tell that by the cerebral symptoms. Then, how are you to get rid of it, since it is not under the influence of medicines, being quite local? After it has been removed, I have used local remedies to prevent its return, but medicines are only useful after removal; therefore straightway remove it. In common polypus, ligature is impracticable; and those who propose it can never have had anything to do with the disease. It is impossible also to remove it by the knife, as you cannot see it, and when touched with a sharp instrument the blood directly flows so as to prevent your continuing the operation. Neither with the scissors can you see your way sufficiently. The best way of operating is with a proper pair of forceps, if you know how to use them. The proper forceps will pull away its neck. The *whole* of the opposite surface ought to be quite rough; convex above, concave below, opening laterally, so that it may hold the polypus tight. They should be pretty strong, and not slender, unless for small nostrils. If made with a screw in the handle, having a double worm, when the polypus is grasped, by proper manœuvring, and screwing it tight, there is no danger of its slipping off. The procedure may be longer, but it is more certain. In a few cases you will want such forceps as these, which open from above downwards, but they are not often required. Any forceps should be oiled and warmed, the patient in a chair with his chin elevated; get hold of the polypus near the base, by intro-

ducing the forceps upwards to the back of the nostril; place one blade on each side, tighten the forceps with the screw, and then —not merely pull it out at once, or the polypus will break off—but twist a little to each side, gently draw forwards, push backwards, twist it again and again, a few times, and then draw out the forceps with some force, and the polypus will come away entire. There may be several others, and if so, repeat the operation. The patient should blow his nose, so as to bring them all into view; if he cannot do so, you must endeavour to remove them without seeing them. There may be, also, a small one jammed in by the larger, which is to be seen on removing the latter. Having done all this, the relief to the patient is immediate.

In some cases one operation is sufficient; in others, two or even three, are necessary. Be gentle in using the forceps; rough usage might impair the ethmoid bone, or even the cribriform plate. I never saw any inflammation result from the operation, or cerebral symptoms, or erysipelas. In one case hæmorrhage followed, which I easily stopped by plugging the nostril with lint. Mucous membranes bear injury more readily than the skin, as in the case of internal piles.

In very old, firm, and cartilaginous polypi, there is great adhesion to the bone; but it is of no consequence if you remove a small plate of the bone with it, for at least that shows that the whole polypus has come away. In these cases I use a peculiar forceps, resembling those employed by ladies for cutting flowers, so constructed as to cut at the upper part, having a rough surface below, to hold the polypus. These shave off the polypus as near the bone as possible.

I will conclude my remarks on the extermination of common polypi from the nose by adding that in some cases you may know from what occurs at the operation, that there is a tolerable chance of the tumour not returning. In making this observation I allude to an occurrence that I met with to-day (Wednesday Nov. 14th). A gentleman came to me with a polypus. There was only one that I could discover. In removing it, a portion of the cells of the

ethmoid bone was taken away. There is no harm whatever in a part of the ethmoid bone being thus extracted; I never saw any ill consequences arising from it, and you may suppose, from the polypus being thus completely removed, that there is less chance of its return than there otherwise would be. Another polypus may arise from other parts of the mucous membrane, but certainly not from this.

Now the polypus being removed, the patient will immediately experience very great comfort—great relief will follow the operation. But he will naturally inquire whether it will return, and you must answer that most likely it will, and that if it do he must again have it removed. But then he will probably put another question. Can you do anything to prevent its recurrence, or to make its growth slow? I believe that you may retard its return in many cases, or even prevent it. About eighteen years since, a gentleman came to me with polypus of the nose. He had many times had polypi removed by a surgeon in the country; but he now came to London and applied to me. I removed the polypus, and recommended him to employ what I had before found useful, namely, white precipitate ointment. It should be softened by holding it before the fire, and then, with a camel's-hair brush, you must paint the upper part of the nostril from whence the polypus seems to have originated. This must be done every day. It is a very mild application, and does not irritate. This gentleman very steadily persevered with the plan; he often came to me for other little complaints, thus I had an opportunity of watching the case, and the polypus did not return for fifteen or

days, a few weeks, or a few months, but even for years. The patient must learn to apply it carefully for himself, or get some one to apply it well for him. If the brush be merely introduced a little way into the nostril, it can do no good. You must explain to him the direction which the passage of the nostril takes, and show him how to pass it up the middle meatus, directing the instrument first a little upwards and backwards, and then directly backwards into the throat; and, indeed, the brush ought to be carried back as far as the pharynx, so that you may sweep, as it were, the whole roof of the nostril. You may use astringent lotions, which I have no doubt are sometimes attended with advantage, such as a solution of sulphate of zinc, or a solution of alum. Dissolve half a drachm of sulphate of zinc in eight ounces of rose water, with a drachm of tincture of galls, and let the patient inject this with a syringe into the nostrils every day. This may more especially be employed where the nostril is narrow, and a camel's-hair brush of sufficient size cannot be made to enter it.

I have sometimes applied the nitrate of silver to the roof of the nostril from which the polypus grows. This must be used carefully, not because of any real harm that it will do, but if it be applied too extensively, it will produce inflammation of the nostril. The upper lip, from the margin of the nostril, must be protected by smearing the parts with olive oil, otherwise the nitrate of silver will flow down upon them, and then, some time afterwards, when the patient has been exposed to the light, he will find a great black stain on his face.

A polypus occurs in the nostril of a different structure from that which I described in the last lecture—a fleshy polypus, apparently composed of firm, solid fibrin, with a very thin membrane over it. It is apparently of the same structure as the polypus that grows from the uterus, and sometimes from the rectum. I am inclined to believe that sometimes the common polypus alters its structure, and becomes a fleshy polypus; but certainly that is not generally the case. I think, however, it does occur in some instances; I know that in other cases a polypus is fleshy from the beginning.

town who was thought to have swallowed a piece of bone, and I believe that there was no doubt that she had done so. I introduced my finger, and, not being able to feel it, I concluded that it was below the reach of the finger. I then passed an œsophageal bougie into the stomach, but could not feel it. I then introduced a probang with a sponge, but with no better effect; but still the woman had the sensation of its being there. I now began to doubt whether it really stuck there, and to suspect that the sensation she experienced indicated that some part of the œsophagus had been abraded or torn by the foreign body, but that the body itself had passed into the stomach. It is a common trick with conjurors to put a half crown into the hands of a person, to press it firmly, and then to say to him, 'You are sure it is there?' The party says 'Yes.' In fact, he has the feeling of it, but when he opens his hand it is not there. The sensation made by the pressure on the hand remains a considerable time after the body itself has been removed, especially if the feeling be assisted by the imagination. You get a piece of sand or gravel into the eye; it is taken out directly, but you persist in saying that it is there; for a little inflammation of the eye produces a feeling as if a foreign body were on the conjunctiva. So I thought it might be with this patient, who imagined that she had a bone in the œsophagus which she could not swallow. Under that impression I ordered an opiate blister; and, under its influence, the sensation was, on the next day, very much abated; and, on the following day, was entirely removed. I think that the rapid subsidence of the symptoms under this treatment, proved that they depended on an injury inflicted, and not on the foreign body remaining there. I met with a similar case in the following instance:—A maid-servant was supposed to have something sticking in the œsophagus, but with the largest bougie or probang, nothing could be discovered there. I treated her in the same manner, and, in a day or two, the sensation was gone, and she was quite well. I suspect that this is not a very uncommon case. A person sends to you, and says that he has swallowed a fish-bone; you cannot find it; in

from the posterior part of the nostril. It had been growing for many years. I removed this by ligature. I never saw or heard anything of the patient afterwards; but as the operation was perfectly successful, and he was very soon well, I think that in the common course of things he would have come back if the disease had returned.

I have said that this polypus was removed by ligature. Now, it is much easier to *talk* of removing polypi in this way than to *do* it; for when they hang from the nostrils into the pharynx it is difficult to accomplish it. There have been many very ingenious contrivances for removing polypi in this situation by ligature, but according to my experience they are more ingenious than useful. You may apply a ligature to a polypus of the nostrils by a very simple apparatus much better than by anything complicated. It is rather difficult to explain the method of applying a ligature when the tumour hangs into the pharynx, and yet those are the cases in which it is necessary to have recourse to this means for the removal of the polypus. When the tumour is situated in the nostrils, it may be snipped off with a pair of scissors, or extracted by means of forceps. There is no difficulty in tying a ligature when you know how to do it, but, as I have said, it is difficult to describe the mode. I will, however, endeavour to make myself intelligible.

One method of tying a fleshy polypus that projects from the nostrils into the pharynx is this:—Pass a bougie into that nostril from which, judging by the exploration of the finger, you suppose the polypus to arise. It may have its origin from the septum between the two nostrils, and in that case you may pass it into either nostril, but generally by introducing the finger into the pharynx and turning it upwards, you will discover that the tumour arises from one or the other nostril. The bougie is to be passed through that nostril into the pharynx; the other finger must then be introduced into the pharynx, the bougie bent, and one end brought out at the mouth. Thus, one end of the bougie projects from the nose, and the other from the mouth. You fasten a

a great deal to the state of their bowels, and it is necessary that they should all do so. Those who live luxuriant and indolent lives are liable to have their bowels become very torpid, and you may be assured that there is no harm in their constantly attending to their bowels. I have known people belonging to the affluent classes who have been in the habit of taking medicine almost every day. I know one hearty old gentleman, eighty-six years of age, who can walk round the Regent's Park, who has taken an aloetic pill every night for threescore years. I knew another gentleman who died at ninety-two, who took either an aloetic or a rhubarb pill for the same length of time, and I could give many other examples. But there are others who do not attend to their bowels; scybalæ form in the colon, they pass on to the rectum, but they are not easily discharged per anum. The softer fæces pass over the scybalæ, other scybalæ descend into the rectum, and the accumulation goes on until at last the rectum becomes completely filled up with a great mass of hardened fæces, as large as the fist, and even larger, so that half a pound or perhaps a pound weight may be collected there. The patient now suffers exceedingly, and he—or perhaps I ought to say she, for it is more common in women than in men—has a desire to go to the water-closet. She goes, great pain is produced, but nothing comes away, the bowels being stopped up with these hardened fæces. The nature of the complaint may be ascertained by introducing the finger into the rectum; you there feel the hard mass of fæces. How is that to be got rid of? By injection? An injection will not act on this large mass. You must first dilate the sphincter muscle by introducing the fingers, and then with the handle of one or two pretty large spoons the whole mass may be extracted. A good nurse can accomplish it very well, if you tell her how. Let her take a couple of dessert-spoons and bring away a little and a little more, and when the rectum is nearly empty, warm water injected two or three times will remove the remainder. Until I was aware how much the sphincter muscle might be dilated, I found it difficult to manage these cases. I used to try to accom-

But there is another method that is still more convenient than this, and which I have employed on other occasions. It was the method adopted by Dessault. You require a silver tube by which the ligature is to be directed into the mouth, a shorter silver tube to be introduced into the nostril for tightening the ligature, and two pretty long ligatures. You introduce a bougie into the nostril and bring out one end at the mouth. To this you fasten a single and a double ligature; the single one must be very long. That being done, the bougie is to be drawn out at the nose, and, of course, the ligatures follow it. You then cut off the bougie, and you have the two ends of the double ligature hanging out of the nose, and the loop hanging out of the mouth; one end of the single ligature also hangs out of the nose, and one end out of the mouth. The single and the double ligature always pass on one side of the polypus; but by means of a silver canula you draw the single ligature to the other side of the polypus. The ligature being held in its place by an assistant, the end of the single ligature, projecting from the mouth, is passed through the loop of the double ligature, and the ends of the double ligature being drawn out of the nose, the single end follows, and you make a ligature which you fasten by means of a canula introduced into the nose. This method is easier in practice than the one I mentioned before, though it is more difficult to describe. (The lecturer illustrated the foregoing modes of tying the ligatures on a paper model held by an assistant.)

MALIGNANT TUMOURS IN THE NOSE.

There are tumours which grow in the nostrils, and are sometimes confounded with polypi, but which are of a malignant character. There is an example of one on the table. A boy was admitted into the hospital with this tumour, I think, in the left nostril, which caused considerable bulging of the ala nasi. On looking into the nostril I saw a tumour of a brownish-red colour, elastic to the touch. It had not the appearance of a common

really passed into the bladder; but I may take this opportunity of stating, by way of guarding you against what occurs in private practice, and, indeed, in hospital practice, that very frequently people pretend to pass calculi from the bladder which were never there at all. It is often very difficult to understand what motive there can be in women for trying to deceive in this respect. We can only attribute it to that perverted state of mind which I mentioned before, and which frequently amounts to insanity. Mr. Childer long ago—for he has now been dead twenty years—brought me a wafer-box full of what were said to be calculi passed from a young lady's bladder. On looking at them I said, 'Calculi! they are bits of brickbat and flint, and nothing else.' He replied, 'It is true, but there is a singular history belonging to them.' He then told me this story:—A young lady, the daughter of a gentleman of fortune, all at once began to bleed, and, as she said, passed these calculi from the bladder. Her father and mother went to stay at the house of a country gentleman, and there she was taken very ill indeed at the water-closet, discharged a great quantity of blood, and produced an immense quantity of calculi, which she said came from the bladder; but they were examined very carefully, and found to be just what I have stated. I might mention many circumstances of the same kind. Among poorer people it is sometimes done for the sake of exciting compassion. A woman produced her little boy who was said to pass stones from the bladder. They were sent to me to examine, and I found that they were nothing but pebbles and flint. It was evidently a trick to get money from compassionate ladies, and in which she was successful.

But foreign substances find their way into the urinary organs of the male as well as the female. A man came here with symptoms of stone, but on passing the sound the stone was felt anterior to the bladder. Sir Everard Home cut him for the stone, and brought out one that was narrow, but two or three inches in length. On making a section it was found to be formed on a flower-stalk. The history of the case was this:—The man was a

This was evidently a malignant tumour, which might have been mistaken for a polypus, although the appearance was so different from the common polypus that on the removal of the growth the disease was readily distinguishable.

I have seen several cases of malignant tumour growing from the Schneiderian membrane. In some cases there is reason to believe that the disease begins between the periosteum and the bone; but I have no doubt that malignant tumours do sometimes grow from that membrane. A young gentleman was brought to me bleeding profusely from the nose. He was of strumous complexion, and one of that class of persons who are liable to a vascular condition of the mucous membrane of the nose. It was of a much more than usually bright scarlet colour, and, indeed, looked like scarlet velvet. The least injury to it would make it bleed, not merely a little, but to many ounces; and there was quite an alarming hæmorrhage from a mere scratch with the sharp end of a probe. By-and-by he came to me with a sort of fungus growing from the diseased membrane over the inferior turbinated bone. This fungus was quite distinct, it was not larger than the end of the little finger, and was attached by a narrow neck. I snipped it off with a pair of scissors, but there was such a rush of blood that I could not tell whether I had removed the whole or not. The fungus returned; I suppose it was not entirely removed, and it grew rapidly. In a short space of time it filled up the entire nostril, and extended back to the pharynx, where it could be felt with the finger projecting the soft parts into the mouth. Mr. Keate saw the patient with me; we examined the tumour very carefully, and hoped that we might be able to remove it by ligature, or, at least, to remove a part. It was tied, but it proved to have so broad a base that the little piece removed did no good whatever. The fungus grew in spite of everything that could be done; it caused caries of the bones of the nose, destroyed the orbit of the eye, projected through the cheek, and ultimately the poor fellow died.

I saw another case of the same kind. The fungus tumour

having originated in the Schneiderian membrane, occupied a great part of the nostril, and then projected through the back of the pharynx. Sir Astley Cooper and myself attended the patient, and we agreed that it was better to remove that portion which protruded through the pharynx by ligature. I applied it in the way I have endeavoured to explain, with perfect ease. I took hold of the tumour with the ligature upon it, and in the course of a few days the ligature came away. Though a very large part of the fungus had been included in the ligature, it became so small and shrivelled that it was hardly observable, just as is the case with what Dr. Clarke calls cauliflower excrescence of the uterus. When that has been tied for some time, and the ligature comes away, the tumour being composed almost entirely of vessels, it vanishes; so it was here. The pharynx was cleared by the operation, but the tumour grew in spite of all that could be done, and we recommended the father, as we could do him no more service, to take his son away. I did not hear the result of the case, but I have no doubt that the patient died shortly afterwards.

From my experience of these malignant tumours, I should say —Let them alone. I never saw any ultimate good arise from any measures that were adopted for their removal; and, indeed, for the most part, malignant tumours in the nostril have so broad a base that any operation for their removal is out of the question.

ON DISEASES WHICH ARE SOMETIMES MISTAKEN FOR POLYPI OF THE NOSE.

I have a few words to say concerning these diseases. The case that I shall first mention is a very common one. A young person, frequently a child, is brought, having dilated pupils, a fair complexion and thin skin, with some difficulty of breathing through the nostrils, and perhaps rather more secretion from them than usual. On looking into the nostrils the Schneiderian membrane appears very turgid, more vascular than ordinary, and on the

outside there is a tumour, an excrescence, sometimes small, at other times pretty large. This may be mistaken for a polypus, and, indeed, the disease puzzled me when I first saw it. This appearance, however, is produced merely by the thickening of the mucous membrane of the nostril at the anterior extremity of the inferior turbinated bone. I do not believe that the mucous membrane there is really more thickened than it is anywhere else; but it is more apparent in that situation on account of the projection of the bone.

In some cases in which the mucous membrane has been sufficiently thickened to obstruct the respiration through the nostril, I have introduced a pair of probe-pointed scissors, slightly curved, and snipped off a portion of the projecting mucous membrane. There is no harm whatever in its excision; and where the nostril is much obstructed, the operation affords great relief. You may suppose this to be a very simple operation; and so it is, for it can be done in an instant, but yet it requires some care in order that it may be done properly. In the dead body you might snip off a bit, and if you had not completed it by one incision you could make another. But in the living subject the mucous membrane is full of vessels, and the part must be snipped off at once; for the moment one division is made with the scissors, the hæmorrhage is so great that you cannot see a bit of the remaining part which requires to be divided. It is only every now and then that you find it necessary to have recourse to this operation. In other cases give the child small doses of steel for three weeks, then suspend its exhibition for a fortnight, and again resume it—and proceed in this manner for three or four years. Delicate children who are liable to this disease of the Schneiderian membrane are always benefited by the exhibition of steel; it should, however, be given not in large doses, for a short time, but in small ones long continued. Where the constitution is weak, you may sometimes cure the disease in three weeks, but the rectifying of the constitution is a work of years. Some good may be done by local treatment. Dissolve two grains of sulphate of zinc in an ounce of

rose-water, and inject a portion into the nostrils two or three times a day; or paint the inside of the nostril with diluted ung. hydrarg. nitratis by means of a camel-hair brush.

I have seen some cases in which a small abscess has formed in the tumour that I have just described. Suppuration has taken place in the substance of the Schneiderian membrane just where it projects in front of the inferior turbinated bone, and the best plan to adopt, is to cut off, with a pair of scissors, membrane and abscess altogether. When an abscess forms in a pile, that is best relieved, not by laying open the abscess, but by snipping off the pile.

Another disease, sometimes mistaken for polypus of the nose, is connected with a morbid condition of the ethmoid bone. A patient has difficulty of breathing through the nose, with pain in the forehead, and blows his nose oftener than natural; by-and-by he blows away hard dry scabs of mucus, like bits of glue, and then there is an offensive putrid smell perceptible to others, and probably to himself also. This indicates disease in the bones of the nose, generally of the ethmoid cells, but sometimes more extensive. Occasionally it is supposed to supervene on syphilis, sometimes it arises from the long-continued use of mercury; sometimes from a scrofulous state of the system; or it may be the result of general bad habit, such as is called cachexia. I am not about to enter into the history of this disease at present, but merely to point out that it may be mistaken for polypus. The symptoms always show that it is not a polypus, and if you turn the patient to the light you will see a tumour at the upper part of the nostril. This consists merely of unhealthy granulations, organised lymph covering the Schneiderian membrane over the bone; and if you take hold of it with the forceps you do not pull away a polypus, but a bit of the Schneiderian membrane with the tumour over it. Take care not to mistake this case for polypus, because the treatment that is applicable to the one is quite inapplicable to the other.

ON DISEASES OF THE TONGUE.

I AM inclined to direct your attention to this subject, first, because you will find, especially in private practice, that you are frequently consulted about diseases of this organ; and, secondly, there is nothing worthy of notice about it in books. I have at different times looked over various books on surgery, and over the journals and surgical reviews, but I have not been able to gain any information about diseases of the tongue, except those of a malignant character; and I must add that the history given, even of these, odd as it may seem, is very different from what I have met with in practice.

In dyspeptic persons the tongue is frequently rather swollen; it becomes cracked on the surface, and may remain so without harm for years. It may bear the appearance of fissures on the surface, and the papillæ may be enlarged. This dyspeptic tongue, existing in a slight degree, is very common. A similar appearance of this organ occurs in persons who have been much under the influence of mercury. When a patient is salivated, the gums become inflamed, and the tongue also becomes inflamed and swollen. In bad cases of salivation, such as you scarcely ever see in the present day, because mercury is more prudently exhibited than formerly, the tongue becomes so swollen, that the mouth will not contain it, and this inflammatory state of the organ, arising from the use of mercury, is very apt more or less to persist afterwards. The tongue is swollen; there are fissures on the surface, and this appearance is retained to the last. Sometimes you will see a longitudinal fissure in the median line of the tongue which does not seem to swell up like the rest of the organ. I remember a patient

who had thus suffered from the use of mercury, and for a long time afterwards his tongue was much enlarged. The longitudinal fissure was so deep that it looked as if the tongue were divided into two parts, and the patient consulted a medical practitioner who, not being acquainted with the disease, thought the tongue was going to drop into two pieces, and proposed to fasten it together by a ligature.

This morbid condition of the tongue requires no special treatment. If the patient be dyspeptic, try to put his digestion in as good a state as possible. When he suffers from the use of mercury give him sarsaparilla, nitric acid, or whatever else may get rid of the effects of the mercury.

There are ulcers of the tongue which are different from those I have just mentioned; sometimes they accompany an enlarged and fissured tongue, but they may exist independently of those circumstances. The ulcers to which I now allude more especially occur as one of the sequelæ of syphilis. They are sometimes accompanied by the eruptions, little spots of syphilitic psoriasis on the body, and little spots on the scalp, but frequently they occur without symptoms elsewhere. A gentleman whom I saw not long since, had a chancre in the spring of the year, some few years ago. Two or three months after that, if I remember aright, he had secondary symptoms. He took mercury, but inadequately; and many months afterwards the secondary symptoms returned; they were, however, but slight, and yielded to some simple treatment. But a year and a half after the first attack of syphilis, there were ulcers of the tongue, so that he could hardly speak or swallow his food; and at the same time spots appeared on his head and elsewhere. He took a little mercury, his tongue got well, and the eruption disappeared. From that time, however, he was subject continually to little ulcers of the tongue, coming but not going of themselves, never disappearing till he had taken blue pill. The ulcers, of which there were several, were very troublesome, interfering with deglutition, nay, even making him speak thick, and occasioning him great distress. Of his own accord he took a

little mercury when they appeared, and they went away; but in two or three months they were sure to return. At last I made him take a course of gray powder (hyd. c. creta) for nearly two months; the ulcers healed, and never troubled him again. These cases are very common as a sequel of syphilis, and the ulcers are seldom cured, except by mercury; but, according to my experience, large doses of it do harm rather than good. Calomel and opium is the great medicine to be brought into play in these cases. The mercury with chalk, five grains, with one or two grains of Dover's powder (to prevent it from griping and purging) is preferable to any larger doses of the remedy. The length of time during which a person may be plagued with ulcers of the tongue is astonishing. I have seen them last for years, until a patient has been put through a pretty long course of small doses of mercury. I saw one gentleman in whom these ulcers followed syphilis, and had been going on for two or three years when he came to me. They yielded to the gray powder, but not very rapidly, and the tongue always continued disfigured and covered with cicatrices. In some cases the patient is relieved by taking sarsaparilla, especially an effusion in lime-water. Where mercury has failed, I have found that the best remedy is iodide of potassium, two or three grains, given twice daily, dissolved in plenty of water; but, in three cases out of four, the gray powder is much more efficacious.

Ulcers of the tongue, such as I have described, sometimes occur merely as accompaniments of dyspepsia, and they generally heal of themselves; but if they do not, one application of the nitrate of silver is generally sufficient to remove them. Those, however, that follow syphilis, do not yield to this remedy; nor does any local application, so far as I have seen, do much service.

Some persons who have ulcers on the tongue, have them also on the inside of the cheek. I suspect that they are originally little eruptions, but as they occur in a mucous membrane they ulcerate more rapidly than they would if they occurred on the skin.

There is a disease of the tongue which I have seen every now

but I apprehend that it would be useless. In the act of vomiting there is a deep inspiration, not a forcible expiration; the diaphragm descends in order to press on the stomach, and, combining with the action of the abdominal muscles, it expels the contents of that organ. After vomiting is over there is no convulsive coughing, so that the diaphragm gradually returns to its own place. The idea of exhibiting an emetic is founded altogether on a wrong physiological notion; and I think it is dangerous to trust to the act of coughing for bringing up the foreign body. It is very true that it may be coughed up through the glottis; but it may stick in the glottis; and then the patient would die.

Now, what is the best rule to follow? If you are satisfied that the foreign body is in the trachea, I believe that the proper course to pursue is not to trust to nature; she may manage it, but you are not certain of it, and in a great number of cases where it is left to nature the patient dies. Make an opening in the trachea, and I believe that it is best to make it low down. You may proceed here as leisurely as you please, for the patient is not in danger of instant suffocation. Take up every vessel as you proceed, and separate the parts as much as you can with a director, instead of cutting them, so as to avoid hæmorrhage. If you open the trachea when bleeding is going on, every time the patient inspires, blood is drawn into the trachea, and the patient may be suffocated by the surgeon opening the trachea too hastily, and allowing it to become filled with blood. I know a case in which a surgeon performed tracheotomy, and the patient died almost directly. On examining the body, as I am informed, the trachea and bronchi were full of blood. Make the opening, then, as leisurely as you please; separate the parts by a blunt instrument rather than a knife; divide three or four rings of the trachea longitudinally, but there is no occasion to remove any portion of the trachea. What will now occur? When you have divided the trachea, if it be a light and movable body, such as a cherry or tamarind stone, as soon as you have made the opening, if you hold back the edges, cough comes on, the foreign body is thrown

decoction of sarsaparilla, with from a quarter to half a grain of bichloride of mercury, may be taken in the course of the day. Of course, if there be anything wrong in the general health, you should endeavour to get that corrected, and attend especially to the state of the bowels and the secretion of the liver. If the secretions of the digestive organs be unhealthy, a dose of senna and salts may be given every other morning, and blue pill every other night. When the patient is brought into this state, one remedy, as I have said, is sarsaparilla with bichloride of mercury, but, according to my experience, this is not the best remedy. The remedy best adapted for these cases is a solution of arsenic. Give the patient five minims three times daily, in a draught, gradually increasing the dose to ten minims. It should be taken in full doses, so that it may begin to produce some of its poisonous effects on the system. When it begins to act as a poison it will show itself in various ways. Sometimes there is a sense of heat, a burning pain in the rectum; sometimes griping, purging, and sickness, and nervous tremblings. A patient who is taking arsenic, especially in pretty large doses, ought to be very carefully watched. At first you may see him every two or three days, and then every day; and as soon as the arsenic begins to operate as a poison, leave it off. When this effect is produced, the disease of the tongue generally gets well, but at any rate leave off the arsenic, and the poisoning will not go too far; it will do no harm. If, after a time, you find that the disease is relieved, but not entirely cured, you may try another course of arsenic. Perhaps it may take a considerable time to get the tongue quite well. Sarsaparilla, with the bichloride of mercury, may be given at one time; and at another, arsenic. You cannot give either of these remedies for ever; and indeed the arsenic can only be given for a very limited period; but it is astonishing what bad tongues of this description I have seen get well under these modes of treatment, especially under the use of arsenic.

Malignant diseases of the tongue generally are of the nature of carcinoma, but sometimes of fungus hæmatodes.

his head down nearly at right angles. The half-sov
cended and stuck in the glottis so as nearly to choke
therefore determined not to repeat this experiment till
an opening in the trachea which would act as a safety-
made an opening some few days afterwards below
gland, but the half-sovereign was not coughed up as a c
would have been, because it was too heavy. We
attempts to use the forceps, but found it so danger
desisted. When he had recovered from the effects of
tion—in the meantime passing a probe every now an
again placed him on a movable platform, his back
with the hand, and the half-sovereign escaped from th
He could feel it rolling along the trachea, till it
glottis, and now, instead of sticking there, it passed tl
as you could roll it through the dead body, and came
mouth. There was no spasm of the glottis, and the a
was to be attributed to the opening in the trachea
came out with the half-sovereign, which had evidentl
from the external wound, and where blood went in
sure that the air went in also. I apprehend the rule
—In all cases where a foreign body has got into the
must not trust to nature, but make an opening into t
and then it is very likely that if the body be light
forced through the opening; or if, by its own weigh
made to assume a certain position, it will pass out
glottis; or, if it be a rough, irregular substance, and s
trachea, you may then, through the artificial openi
with the forceps and extract it. But I advise you
careful how you use the forceps, except where the fore
actually in the trachea: cases may occur in which yo
them in the bronchus, but it must be done with t
possible caution.

FISTULA IN ANO.

I PRESUME that you are all aware of the fact that abscesses are very liable to form in the vicinity of the rectum, and that when so formed, they heal only with considerable difficulty, and, for the most part, do not heal spontaneously. You are also aware that the parietes of those abscesses contract, and become hard and callous, in which stage the disease takes the name of fistula in ano.

Now, this affection, although of frequent occurrence in hospital practice, is much more common in private practice, and therefore it is, in every point of view, a disease of great interest to the surgeon.

The first question that presents itself is this—Why is it that abscesses are so particularly liable to form in the situation in question, and that when so formed they do not heal like abscesses occurring in other parts of the cellular membrane? I formerly supposed that the healing process was prevented chiefly by the irregular action of the sphincter and levator ani muscles. Further consideration, however, and more mature experience, have led me to the conclusion that this opinion was incorrect. That such causes may interfere with the healing of any abscess I well know, but I am now fully satisfied that they will not afford sufficient explanation, why it so rarely happens that abscesses near the rectum heal spontaneously, and, at any rate, it is quite clear that the action of these muscles will not explain the formation of these abscesses. In order to explain their formation I must call attention to what happens in other parts of the intestinal canal. The mucous membrane, under a variety of circumstances, is liable to ulcerate. In patients who die from diseased liver, or phthisis

be passed through the tongue, and it may include as much as you please. If there be a large portion to be removed, make a notch with a pair of scissors behind and before; into which the ligature can drop so as to enable you to effect the strangulation more completely. It gives a great deal of pain at the time you apply the ligature, but you must have a very strong ligature, and tie it as tight as possible. The part introduced between the ligature is immediately killed; it assumes a purple and then an ash colour, and in the course of a few hours the pain is over; but profuse salivation follows, and in some cases lasts two or three days.

There is no great difficulty in removing, either by the knife or by ligature, any tumour from the tongue, except it be situated just at the back; but then I must tell you that I never saw any permanent good arise from it in any one instance. In the examinations I have made where there was carcinoma of the tongue, the scirrhous disease was beginning in other parts. A woman has a scirrhous tumour of the breast—do you think that you would succeed in curing the disease by cutting away a portion of the breast and leaving the rest? You have no chance of the operation succeeding except you remove the whole, unless the scirrhous tumour be distinct with a cyst around it, and have no connection with the breast. If there be fungus hæmatodes of the tibia, no surgeon of sense would think of performing amputation, except above the knee, even if he did it there. In order that an operation for malignant disease may be successful, you must remove the whole of the organ in which it is situated, otherwise there is no chance of permanent good. In the case of malignant disease of the tongue, you cannot remove the whole, but only that little bit in which it has shown itself, while there is an under current of disease going on everywhere else. I therefore cannot recommend you to perform the operation, and I think it is better to let a disease like this take its course than to subject the patient to the pain of an operation, and, what is worse, to the disappointment. The patient goes through the operation, and then in a

little while he is disappointed to find that he is just as bad as ever.

I cannot say that those small ulcers of the tongue which I described before, never run into malignant disease. I suspect that any ulcer there that has existed for an indefinite time may assume the character of malignant disease. A patient had ulcers of the tongue and cheek; he was apparently dyspeptic, and, so far as I know, they were not connected with syphilis. He had been subject to them for years, and they generally yielded to some remedies; but at last I was called in to see one of the ulcers, unusually intractable, in the cheek. It had become malignant, and the patient died of carcinoma of the cheek. Where there are ulcers of the tongue, take care that there are no external causes of irritation acting upon them to keep them up; for this will sometimes convert a simple into a malignant ulcer. Teeth, scarifying ulcers in the tongue, should be extracted. In many cases rough, ragged teeth produce disease of the tongue. In malignant disease I have over and over again had the teeth taken out, while the event has proved that they might as well have remained; but still, when there is a sharp tooth cutting against the edge of the tongue, you are always to look at it with great suspicion.

There is one other disease of the tongue, or rather a disease under it, which remains to be mentioned. A patient comes with a sore mouth, and you see the tongue pushed up to the soft palate. It looks as if the tongue were enlarged, but that is not the case, it is lifted up. You tell the patient to put his tongue against the incisor teeth, and on looking beneath you see a tumour. By feeling it you find fluctuation; you puncture it, and let out a quantity of transparent fluid, sometimes a teaspoonful or more. The fluid is a little glutinous, and consists of saliva. There has been an obstruction to the orifice of the submaxillary gland; the saliva has been secreted by the gland, but could not get out by the duct, and hence it has remained till it has formed a large tumour. This is what is called ranula.

situation. I thought that there was a deep-seated gland which suppurating, and recommended him to go home, to keep q and to poultice the tumour. A month after he had jumped the coach he sent to say that the abscess had burst. There v discharge of pus from it, but it was of a very offensive char and on examining it carefully I was satisfied that there were f mixed with it. He had no bad symptoms at first, and be very nervous man I did not tell him the exact nature of the lest it should alarm him. Two or three days afterwards he some medicine, and a draught of decoction of bark. A short after, to his horror, the decoction of bark ran from the groi frightened him out of his wits. From that moment his ne system began to give way, he became in a state of great ne excitement, and died ten days after the bursting of the absc

On a post-mortem examination I found an ulcerated op of the cæcum; the fæces had escaped through it into the ce membrane at the posterior part of the cæcum, and forme abscess, which burst into the groin. There was a woman i hospital, with an abscess in the groin, and we supposed it connected with dead bone, which is the case with a great nu of chronic abscesses. Perhaps sufficient attention was not p the quality of the discharge; but one day the woman, in t off a poultice, found in it a lumbricus. She ultimately died on examining the body after death we found an ulcerated op of the cæcum through which this intestinal worm had ma way. It was evident that the ulcerated opening of the ca which was at the posterior part, had been the beginning o abscess. Though these cases are not exceedingly rare, I me them, because stating specific cases will often impress an impo fact on the mind much more than a general observation.

I believe that this is the way in which fistulæ in anc always formed, namely, the disease is originally an ulcer o mucous membrane of the bowel, extending through the mus tunic into the cellular membrane external to the intestine; I will state my reasons for entertaining this opinion.

NON-MALIGNANT TUMOURS OF THE TONGUE.

In my last lecture I spoke of diseases of the tongue. I should have mentioned that other kinds of tumours than those I there described occur in that organ, just as they do in other parts of the body. Their formation in the tongue is not a frequent occurrence; nevertheless, you meet with them sometimes. A gentleman came to me with a tumour of the tongue, which was distinguished from common scirrhus by its being further from the surface, and very distinctly circumscribed: still, from the hardness of the tumour, I was led to suspect that it might be of a malignant nature. Had I found the same kind of tumour in the female breast I should have said that it was scirrhus; but as it had not the character of common scirrhus of the tongue I entertained doubts upon the subject. As an experiment I gave the patient tincture of iodine, eight or ten drops three times a day, gradually increasing the dose to twenty dops. After taking this for a short time the tumour appeared reduced in size; and on continuing the medicine for some time longer it was still more reduced, and it ultimately disappeared entirely. What the nature of the tumour was I do not pretend to say. I may mention one circumstance connected with this case, by way of putting you on your guard as to the use of tincture of iodine. The patient wished to go into the country, to which I gave permission, provided he would have a medical attendant to look after him while taking this remedy, adding that I could not sanction any patient of mine taking this medicine except under medical observation. He took the iodine without placing himself under medical care; and its action not being properly watched, he one day had a paralytic stroke. He instantly left off the medicine, and he ultimately recovered. This is only one case of many which I might mention, to show that iodine often produces powerful effects on the nervous system, and that it is not to be taken—at least in large doses—without considerable caution. I remember seeing a patient who had a large

the ulcer which had been the original cause of the disease. ' original opening of the abscess is generally very small indeed, occasionally it is large, and when the ulceration has proceede some extent, large enough to admit the end of the little fi The inner orifice is, I believe, always situated immediately a the sphincter muscle, just the part where the fæces are liab be stopped, and where an ulcer is most likely to extend thr both the tunics.

I believe that the most common cause of abscess of this is, the lodgment of hard fæces in the bowels; by the strai that takes place to expel them, the mucous membrane gets or abraded at one part, and then the passage of the fæces c ulceration. Some time afterwards straining again occurs, then the muscular tunic gives way, and the fæces escape int cellular texture. Foreign bodies, however, in the rectum, s times cause abscesses. I mentioned two cases in my last lec but I shall mention them again. I mentioned them before cause they particularly appertained to the subject we were discussing. I was called in by a gentleman who complaine great irritation about the rectum. I thought that he labo under internal piles, but the next day he complained still n and on examination of the rectum I found a hard subst sticking in the membrane. It was a piece of apple-core w he had swallowed the day before, and if it had not been extr it would have occasioned ulceration, some of the fæces w have been pressed through the opening, and in all probability apple-core would have been found in the cavity of the absces was sent for to see another gentleman who was exceeding with a large abscess in front of the anus. He had a brow rather a black tongue, and bad typhoid symptoms. I opened abscess freely, let out a quantity of putrid offensive matter, on introducing my finger into the abscess, I found a long fish-l sticking across, with one end in the gut and the other in abscess. He had swallowed the bone, it had stuck in the bo and a little of the fæces escaping by the side made a pu

PARALYSIS.

I NOW enter upon another topic. When such a change takes place in the nervous system that the mandates of the will are not conveyed to the muscles, we say that there is paralysis. Paralysis may be, and generally is, attended with a loss of sensation also to a greater or less extent; but this is not a matter of course. The nerves of sensation may be affected without involving the nerves of motion, and vice versâ.

Paralytic affections may depend, as you may suppose, on various causes. Mere general deficiency of nervous agency; the accidental division of a nerve of the spinal cord; pressure upon any part of the nervous system; tumours or other morbid alterations of structure in the brain and spinal marrow, will produce paralysis.

Where there is a tumour or morbid alteration of structure, in some instances, the paralysis will come on gradually; but it is a remarkable circumstance that in many instances that is not the case. Disease is going on, perhaps, for months, or even years, and all at once there is a sudden stroke of paralysis. For example, the late Dr. Wollaston, the eminent philosopher, had a disease of the brain, which proved to be a tumour situated in one optic thalamus, and it produced in him a remarkable effect. He saw one half of an object, and not the other half. He used frequently during life to talk to me on the subject of this peculiarity of vision. He had it when a boy at school, but when sixty years of age he was all at once seized with paralysis in one arm, that extended, and he died. On the post-mortem examination we found a tumour as large as a walnut connected with one optic thalamus.

A gentleman consulted me last year who had all at once becc paralytic in the lower limbs. I need not detail the case; ultimately died, and on examining the body, I found a tumour the middle of the spinal cord, at the back, which evidently m have been growing for years. This was proved by other sympto but there had been no paralysis. I attended a gentleman diseased prostate gland; he was in a very miserable hypochondri condition, and used to cry without any evident reason for One day on going to the close-stool he all at once became paral on one side of the body and he died. On examination we fo ramollissement of one complete hemisphere of the cerebrum.

The sudden occurrence of paralysis in these cases is to be counted for in the following manner:—The tumour or mo alteration of structure goes on in the brain, and then there sudden effusion of serum into the ventricles. In Dr. Wollast case the tumour grew so gradually that it did not affect the fu tions of the brain; but all at once it projected into the ventri so as to produce irritation of the lining membrane, and then th was a sudden effusion of water into the ventricles. It was same with the gentleman who died from ramollissement of brain. That must have been going on for months, and no do produced low spirits, a disposition to weep, &c. On exami the body after death we found the ventricles distended with w and I conclude that it was the sudden effusion of water there caused the sudden paralysis. I know of some other cases in w water has been effused into the ventricles of the brain, indep dently of inflammation, in a very short space of time. The anc writers distinguished between sanguineous and serous apopl In the former, blood is extravasated from the rupture of a v in the brain; in the latter, water is effused into the ventri and both occurrences may take place suddenly. I have know person become quite apoplectic in a few hours, having b perfectly well before; and on examining the body after deat have found the ventricles distended with serum.

Again, the sudden occurrence of paralysis in the case wh

there was a tubercle in the spinal cord, I apprehend, was to be explained by this circumstance, that all below the part where the tubercle was situated was in a state of softening, or ramollissement, as the French call it; but I shall have to advert to this subject again presently.

Different names have been given to different forms of paralysis. You hear of hemiplegia—half the body being struck. Sometimes there is paralysis in one leg, one arm, or down one side of the body, and not the other side, and this form of paralysis is generally called hemiplegia. It always depends on disease in the brain itself. The right side of the brain belongs to the left side of the body, and vice versâ. If the left leg and arm, therefore, become paralytic, you conclude, as a matter of course, that the disease is on the right side of the brain. Another form of paralysis is called paraplegia. That word has been used rather indefinitely, but still I believe that every one who has employed it has meant to say that the paralysis was not confined to one side of the body, but exists on both sides. The Greek preposition *παρὰ* signifies 'stroke across.'

Now, it is to the various cases that are confounded with one another under the name of paraplegia to which I wish to call your attention in this, and probably in my next, lecture.

You will often find a person with these symptoms—I think I see such a case every month of my life. The patient complains of a difficulty of walking; he finds that he stumbles easily. When he attempts to use his limbs he sometimes finds that he cannot carry his intention into effect, the muscles do not exactly obey his will. He finds that he does not stand steady; that he must put his feet asunder, in order that they may be wide, otherwise the centre of gravity is apt to go too much on one side. This difficulty increases, at last he walks very unsteadily indeed; the muscles of the lower limbs become flaccid; the weakness of the muscles extends upwards, and generally there is a loss of sensation. For a long time the latter is not complete, nor is there a complete loss of the power of motion, but the disease is gradually creeping on. By-and-by the

patient complains of a loss of power below his waist, and not only has he a difficulty in walking, but there is a difficulty in making water; he cannot command the bladder, the urine runs away involuntarily, wets his clothes, wets the bedclothes, and makes him offensive to himself and to others. This generally happens from the bladder being overloaded, and not being capable of emptying itself; though sometimes it is the reverse; the bladder is actually empty, and continues so, for the urine runs through without distending it. Generally, however, it is an overloaded bladder that produces incontinence of urine. The patient then has a sense of constriction as if a hoop were bound round his waist. That is a very constant symptom in these cases. Then he will complain of a sensation as though a ligature were bound round each thigh and each leg, and there is increasing numbness, with a sense of weight in the feet.

In some instances the disease remains just as I have described it; and I have known persons go on in this way for many years. I remember a gentleman who had just the symptoms I have mentioned, respecting whom I was consulted, but for whom no good could be done, and I used to see him crawling about the streets for years afterwards. But in other cases the disease goes on; the lower limbs become completely paralytic, then the upper limbs become affected, first one arm and then the other. In some of these cases the bowels are exceedingly costive; they are not to be acted upon, even by the strongest medicine, and very frequently there are pains in the abdomen. Sometimes you find the disease making rapid and at other times slow progress.

spinal cord; that is to say, softening, or ramollissement. The change that occurs at other times in the brain takes place in the spinal cord after a concussion of the spine. A very common effect of concussion is to injure its minute structure, and then to a greater or less extent it dissolves into a substance like cream. In this state of softening it first loses its natural consistency, but still retains the character of solid substance. By-and-by it becomes completely melted down to a substance like cream; the membranes can hardly be lifted out, and when placed in water the spinal cord floats, and the membranes remain by themselves. What produces this softening I cannot say. Some have said that it is inflammation, but certainly there are no marks of inflammation; there is no unusual vascularity preceding or accompanying the softening; there are no vessels loaded with blood, and, indeed, the parts are rather less vascular than natural. All that can be said is, there is some peculiar change of structure, the proximate cause of which we cannot explain, nor very often the remote cause. A young lady had this state of the spinal cord, and ultimately died from it. She was a healthy young woman in other respects, and there was nothing to explain it. There is one very common cause of it—not in young women but in men—men who rank among what is called the *better* classes, which, I suppose, means only that they are richer than others; at any rate they are not better in the point I am going to mention. There is a class of people, in London especially, who have no employment, who have large fortunes, and who spend half their time in intriguing with women; and in many instances you may trace the disease of the spinal cord to over-indulgence in sexual intercourse. Though we know more of the appearances after death than did the ancients, yet they very well described paralysis arising from this cause when they spoke of it as tabes dorsalis.

That is one cause of paraplegic symptoms, but from what other causes may they arise? A gentleman had formerly some pain in the back, or some symptoms which led a surgeon to apply a caustic issue in the neighbourhood of the spine. This was almost

sinus runs high up. You must search for it immediately
the sphincter muscle. Another circumstance that makes it
cult to find is this:—The common probe being quite round,
round in the hand; you want a probe of a much broader ki
that the least motion of the hand turns the point anothe
For this operation I use the probe I now show you, made by
and Wicker, in St. James's-street. First, it has a flat handl
that gives you a perfect command of the instrument; second
the extremity, it is like a common probe; but you must have
of different sizes. There is a groove, so that it is both a
and a director at the same time, and being made of silve
perfectly pliable.

Now, to find the inner opening, place the patient over
to the light, with an assistant to hold the legs. You int
the fourth finger of the right hand into the rectum, rememl
that the opening is close to the sphincter muscle. You wi
with the finger some little irregularity, and that is wher
opening is probably situated. You are then to introduc
probe into the external opening with the assistance of the
in the rectum, using no force, and by a careful manipul
feeling first in one direction and then in another, at last
almost alone pass through into the rectum. It must be
gently, and a little practice will enable you to find the
opening. You ascertain when it has passed through the op
by its coming in contact with the finger. If you do not fi
opening the first day, put off the operation to another
Occasionally I have tried two or three times before I coul
cover the opening, but generally, if you have probes of dif
sizes, it is easily found. Sometimes the opening is very smal
therefore requires a small probe. When you have found the
opening, and the probe is in contact with your finger, you
the end and bring it out at the anus. Thus, the part towar
handle is seen projecting from the outer opening, and the
part from the anus, while the parts which are to be divided lie
the groove of the director. I generally divide the fistula

Paraplegia sometimes occurs in patients who labour under carcinoma. A gentleman had a diseased prostate gland; it was much enlarged and indurated, and there was great pain in the region of the prostate. After a time he was seized with severe pains in the back and in the limbs, such as patients frequently have who labour under carcinoma—intense agonizing pain, which nothing will relieve. These pains, in fact, depend on carcinomatous disease in the bone, and the bones of patients thus affected will break from merely turning in bed; I have known this occurrence to take place in the femur. This gentleman, with disease of the prostate, suddenly became paralytic in the lower limbs, and died; there was no post-mortem examination of the body. A lady whom I attended last year was suffering from a hopeless case of carcinoma in the breast, and agonizing carcinomatous pains in the limbs. One day she became paralytic, lost the use of the lower limbs, and died. Here, also, there was no post-mortem examination. But I met with the following case:—A lady consulted me concerning a scirrhous tumour in the breast. She had gone through the operation for it a year or two before; the disease had returned, and therefore, as far as this was concerned, nothing could be done. By-and-by there were pains in the limbs and in the back. One night, all at once, she lost the use of her lower limbs—could not move them. She died; I was engaged at the time, and could not attend the examination of the body, but Mr. Cutler conducted it. He found, as we had expected, carcinoma of the bones of the spine, and the disease had extended to the dura mater. The carcinomatous bones did not press on the spinal cord; but the disease had produced irritation of the arachnoid membrane, and there was a large secretion of bloody fluid into the theca vertebralis, near the cavity of the arachnoid. It was evident that the collection of fluid in the theca vertebralis had been the cause of the paraplegia.

It has been said that paraplegia—paralysis of the lower limbs generally—depends on disease of the brain and not of the spinal marrow. This was maintained by Dr. Baillie, and published in a

thought I had done it. But one day, when examining it
probe, I found a sinus running up by the side of the g
several inches. It seemed as if one side of the rectum wa
pletely dissected from the neighbouring parts, but there
good opening at the lower part where I had divided the f
Not knowing what to do with the case, I called in the la
Cline, and observed to him that if I divided it the whole l
the patient might die from loss of blood. He said, 'Y
quite right, but more than that I do not think it is necess
would leave it alone.' There was a free opening belo
fæces could not escape so easily now, and get into the
above. I adopted his advice, and the patient got well w
any trouble. I have since seen other cases of the same
Where there has been a large sinus, connected with a fis
have laid open the parts between the inner and the outer or
done nothing more—and the patient has got well. If a ve
sinus, and a very large cavity, heal up without being laid o
fortiori, if there be a small sinus, and a small cavity, th
heal up too.

In the next lecture I shall call attention to the treatm
more complicated cases.

I concluded the last lecture by speaking to you of the m
performing the operation for fistula in ano where that fistul
the simplest kind. But I now come to consider what is
done in a case of fistula attended with some complication.

The external orifice of the fistula is sometimes at a consid
distance from the verge of the anus, perhaps two or three i
and in some cases it is as far off even as the buttock. Yo
if you please, perform the operation in the same manner.
may pass the probe in at the outer orifice along the fistu
the rectum, feel for the end of the probe in the bowel, an
divide the whole. This, however, is a very serious operatio
a very painful one; you may have considerable hæmorrhag
under any circumstances there is a very large surface that is
healed by granulation. But the fact is this extensive divi

as though the head were alive and nothing else. His wife died, and he soon followed. I obtained leave to examine the body. Mr. Tatum and another friend accompanied me. We all three made a very careful examination. What we might have found if the spinal cord and brain had been macerated in alcohol, and if we had traced the fibres and examined them with a microscope, I cannot pretend to say; but, with such an examination as we could make in a private house in the course of a couple of hours devoted to it, we could not detect any morbid appearances at all. The spinal cord seemed rather smaller in size than usual, there was some little effusion between the pia mater and the arachnoid, and at the upper part of the spinal cord there was manifestly a blush. The patient had felt for a considerable time pain in the epigastrium, and I thought that might indicate some disease in the plexus there. We took it home with us; Mr. Tatum dissected it with the greatest care, but nothing could be discovered. Do not, however, suppose that I believe this to be a mere functional disease, because we see nothing after death. The minute organisation of the brain and spinal marrow is not visible to the naked eye, and even with the miscroscope you can only trace it a little way. I doubt not that there was some defect in the minute organisation of the body, some change of structure not perceptible to us. I cannot suppose that such a train of symptoms could occur from mere functional disease.

Another cause of paraplegia is inflammation of the lower part of the spinal cord. I read yesterday in a medical journal, an account of a man who had pain of the lower part of the back, and in the course of a fortnight he became completely paralytic in his lower limbs. On examining the body after death, the spinal cord was found softened, there was blood extravasated here and there, and it was said that the spinal cord bore marks of inflammation; but I am inclined to believe that inflammation of the membranes is a more common cause of paraplegia than inflammation of the spinal cord itself.

I have known a severe attack of lumbago to be followed by an

remained in that state for some years, and
seeing this gentleman a second time, and w
one in which severe lumbago was followed b
to the house of the late Dr. Davies, of the
see his preparations, and amongst them wa
marrow with the membranes, the lower part,
cauda equina, being encrusted with coagulated
inquiry about the preparation, he said that it
case—that the patient had had violent pain
was followed by paraplegia—that he died,
morbid appearances. In fact, he described ex
paraplegic gentleman whom I had just visit
will not say several, but some cases of sever
the patient was threatened with paraplegia,
the employment of proper treatment. There
who had some rheumatic complaint for which
made of tincture of cantharides. One day
swallowed a bottle of liniment instead of his m
found that he had got something monstrously
He had to obtain advice, and then an emetic h
so that three-quarters of an hour were lost, an
tincture of cantharides had nearly passed ou
Immediately afterwards he was seized with pain
was strangury, great pain and difficulty in maki

and then divide the sinus. But this is, after all, a very unsatisfactory way of doing the operation, and you may rest assured that if you make an artificial opening and fail to find the real and original opening, in three cases out of four you will be plagued afterwards. You have made an artificial opening, but the original one remains, and you go on dressing the sore; but there is a little infiltration of fæces and mucus into it that prevents it being healed. When you have to make an artificial opening in the way I have stated, I advise you to do something more. Having made the artificial opening, and laid the fistula open into the gut, take a straight probe-pointed bistoury, introduce it into the rectum, turn its cutting edge outward, divide the sphincter muscle, and set that completely at liberty. No large division of parts is necessary for this purpose, but having set the sphincter muscle completely at liberty, you will scarcely have any trouble in the healing of the sinus. This is better than merely laying open the sinus into the gut, where you cannot find the internal orifice; but it is not so good as the operation where you can find it, because you have more bleeding, you give the patient more pain, and there is a larger wound to heal. I may, however, take this opportunity of mentioning that, although the bleeding from the division of the sphincter muscle is considerable at the time, yet it is never dangerous, because it is within reach. Probably you may see the vessel that is divided, and can secure it by a ligature; but if not, a dossil of lint, dipped in a styptic lotion, laid on the part, and kept there by the finger of an assistant for half an hour, will always stop it.

I mentioned in the last lecture two classes of cases in which the fistula has no external orifice. In one of these there is a small internal opening, and the fæces having penetrated the cellular membrane external to the gut, an abscess has been formed which has burst into the rectum by another opening. In these cases, by making pressure externally, you may generally feel where the matter is lodged. One day the bag is empty, another it is full. Take the opportunity when it is full, and you can feel where it is

situated, to make a puncture into it with a lancet, and l
done, you reduce it into the state of a common fistula, ex
there are two internal openings into it instead of one.
introduce the probe into the rectum and divide the fist
usual manner. You must, if you can, discover both th
openings, and let them both be included in the incision
make.

I stated that there was another case in which ther
ulcerated cavity in the neighbourhood of the rectum, h
external communication, and where the orifice was origi
like a pin-hole, as in common cases, but sufficiently large
the end of the little finger. The ulcer has gone on ur
made a considerable cavity by the side of the gut, h
external opening; and here you are to proceed in the
manner:—The broad internal opening is always clos
sphincter muscle, and at the back part just opposite
coccygis. You must be provided with a probe, bent lik
on the table. The probe is to be passed into the rectum,
drawn down again, so that the point may enter the
cavity. The point of the probe is felt under the skin;
may be punctured with a lancet, and you then introduce
director through the aperture and divide the fistula in
manner. [The lecturer illustrated these operations by m
diagram.]

Now, there is another form of fistula of the rectum that
very especial notice. I cannot better explain what I m
by mentioning the following case:—There was a middle-
who had an abscess formed in front of the rectum. I
that it arose, in the usual manner, from ulceration of
The abscess burst close by the posterior margin of the va
appeared just like a common fistula. She consulted a
who inadvertently treated it as such, and laid it open int
But what was the consequence? He divided both the
ani and the sphincter vaginæ, and the wound never
healed. She was in the condition of a patient with a

that state some days, and then died. On examining the body after death we found the original disease to be that which you now see on the table. A tumour was inside of the theca vertebralis, but outside of the dura mater. There was a deposit of lymph, of considerable thickness, which had become organised, extending from the great occipital foramen down to about the fourth cervical vertebra, but it was not quite sufficient to press on the cervical portion of the spinal cord. Outside of the spine there was a quantity of coagulated lymph—a large mass along part of the bodies and sides of the vertebræ, and this communicated with lymph inside by processes of lymph extending through the openings by which the nerves passed out to form the cervical plexus. The immediate cause of death was effusion of fluid into the ventricles of the brain, that circumstance occurring in this case which I mentioned in the last lecture. The malady went on till the ventricles were attacked, and then the fatal disease was superadded to the original affection. There was no disease in any part of the spine below that I have mentioned.

In this case the upper limbs became paralytic first, and the lower afterwards, and that is the usual course where there is disease affecting the upper portion of the spinal cord. It is the case in disease of the vertebræ, as I shall mention presently.

A lady came to London some years ago to consult Sir H. Halford and myself. She had become paralytic in the upper limbs, but that was all. She could walk about and do everything but use her upper limbs; and in these one muscle had given way after another till the paralysis was complete. She then began to experience considerable difficulty in swallowing, showing that the disease was not under the control of medical treatment, and we advised her to return to the country. She went, and there she died. I am not certain whether or not she became paralytic in her lower limbs, but her surgeon in the country examined the body after death and sent the result. The disease was confined to the cervical portion of the spinal cord, and from ramollissement, similar to that which I described as taking place in the

lower part of the cord: it was reduced to the consi
cream.

Cases of paraplegia affecting the upper are not nearl
mon as those affecting the lower limbs; but we see th
now and then. The opportunities of post-mortem exami
course, are rare, but I have conducted two, and from
should conclude that the seat of the disease is genera
found in the cervical portion of the spinal cord.

Caries of the spine produces paralysis of the parts belo
are well aware, and so far there is a resemblance bet
symptoms produced by caries of the spine and those d
the spinal cord to which I have adverted in this and
ceding lecture. Owing to this similarity between the s
of the two diseases, cases of paraplegia are continually
to be cases of diseased spine. This, however, is a gr
because the treatment proper in the one case is quite
in the other. Where there is caries, it is necessary that th
should remain a year or two in a recumbent posture, b
not requisite in cases of disease of the spinal cord, and
is sometimes injurious. In many cases of caries it is right
caustic issues, apply setons to the back, and adopt count
tion; but, where there is disease of the spinal marrow,
remedies are not useless, yet they torment the patient,
great demand on his bodily powers, and besides exhaus
strength, are sometimes absolutely injurious. Over a
again have I seen cases of paraplegia depending on diseas
spinal cord, treated with caustic issues, seton, and blist
without being productive of the smallest benefit; on the
they are generally prejudicial, independently of which th
the patient miserable.

But how are we to distinguish cases of caries of the
from cases of paraplegia depending on disease of the spinal
In the former there is generally pain in that part of t
that is affected. There is one kind of caries, which I ca
matic caries of the spine, in which the pain is very severe,

nich pain is produced by percussion on the spine; even in cases scrofulous caries there is generally some pain in the part affected, nd some pain on percussion, but it is not constant; and there are any cases of scrofulous caries in which this diagnostic symptom pain) is absolutely wanting. This circumstance will help you in ne diagnosis to a certain extent, but it is not of itself sufficient. there be great pain in one part of the spine, and pain on per-ussion, you may be pretty sure that it is not disease of the spinal ord. I speak of pain that is indubitable, not imaginary pain. It easy so to squeeze the processes of the vertebræ that the patient ays it gives him pain. Still the absence of pain does not prove hat the disease is not in the vertebræ, because in cases of scrofu-ous disease sometimes there is no pain. Paralysis, however, in ases of disease of the vertebræ, does not take place at an early period; it rarely occurs before there is angular curvature of the pine, and sometimes curvature to a considerable extent. That is a very important diagnostic mark. In cases of disease of the spine there is generally cramp in the lower limbs, and the posture of the patient is of a peculiar nature. The flexor muscles gene-rally act, draw up the thighs and bend the legs, and you will find the patient getting into that position, with his knees drawn up towards the chest. By combining these diagnostic marks with each other you may generally make out whether the disease is within the theca vertebralis or external to it.

I now come to make some observations on the treatment of these cases; but it is rather difficult to lay down any clear rules for your guidance; that is, the treatment ought to differ according to the nature of the disease, but we have not yet sufficiently advanced in our knowledge of this complaint to be able to state positively whether the disease be of one kind or another. If the disease be an inflammatory affection of the membranes you may distinguish it tolerably well; but if it be of a chronic character, it is difficult to discriminate between softening of the spinal marrow, tubercles in the spinal cord, and effusion of fluid into the theca vertebralis. I really am not able at present to tell you how to distinguish one

of these diseases from the other, in the living person, which the three may be combined together, or there ma first, and the others may supervene.

However, let us suppose that there is a case, such as I h described, of inflammation of the membranes of the spinal The patient comes to you with a severe attack of dreadfull and by-and-by he states that there is numbness in the then difficulty in moving them. In this case you may sure that there is inflammation of the membranes of part of the cervical cord. How is that to be treated? first place take blood by cupping, from the loins, and according to circumstances. Begin by purging the patie ing the bowels well out—a right plan to pursue in all inflammatory disease. Then put the patient under the of mercury, exhibit calomel and opium, and treat hi would a patient labouring under pleuritis or iritis. If much mistaken, I have several times seen the disease st the exhibition of mercury. I have known a patient under numbness of the limbs and incipient paralysis, rec the gums were made sore by mercury. But if you are at a late period, when the inflammation has subsided, paralysis consequent on it remains, even then you cannot than put the patient under a course of mercury, though a course as you would employ in the beginning of th You must not now exhibit two or three grains two or th a day, but a mere alterative course—five grains of Plum night and morning—the eighth of a grain of bichloride of twice a day, in addition to which you may apply bliste lower part of the back.

The result will vary in different cases according to th which the treatment is commenced, or according to the of the disease. In some cases you may obtain a perfect c the use of mercury; in others, an imperfect one. A g riding in a second class railroad-carriage was exposed t of cold north-easterly wind from one to two hours. The

re was pain in the neck, and two or three days afterwards his ids were benumbed. In the course of a week both his arms came paralytic, and then the lower limbs also. We put him der a course of mercury, and he partially recovered, so that he s able to walk about and write, but he was still paralytic to a rtain extent.

The treatment of a chronic affection of the spinal cord producing paralysis must be, to great extent, empirical, because you nnot make a certain diagnosis. Let me repeat what I have ist now observed, that I have never seen any beneficial results rise from the use of counter-irritation; on the contrary, I have ften seen it productive of mischief. Probably the bowels are very orpid—they will require to be kept open, and it is very difficult o effect it. Sometimes very strong aperients are necessary for his purpose; but it is essential that they should be kept open, or the secretions of the digestive organs are very often exceedingly lisordered. The stools will be black, like tar, and the lodgment of the black secretion in the intestinal canal appears to be productive of great mischief to the system. Calomel and a black draught may be exhibited every now and then, but a patient cannot take them from day to day. Sometimes the comp. ext. colocynth will be sufficient, but simple purgatives often fail. The pills which I am about to mention I have found to be convenient in cases of this kind. Two scruples and a half of comp. ext. colocynth; half a scruple of soap; one drop of croton oil. Let these be well rubbed up and carefully mixed, and divided into a dozen pills, one or two of which may be taken every night or every other night when wanted. These are excellent pills; they cause nothing like the inconvenience produced by large doses of croton oil, and are very efficient indeed. The disease is very probably quite incurable, and it does not matter what medicine you give the patient. But still every now and then the progress of the disease is stopped, and the patient gets very well again.

The treatment which I have found to be most successful, and under which I have seen the greatest benefit arise, is a grain of

I cannot doubt that piles are just what I have mentioned dilated varicose veins. This is the common theory of their f mation, and I certainly believe it to be correct. If you cut throu piles, and dissect them, as it were, in the living person, you that they are made of dilated veins; and if you dissect piles the dead body, you find them just the same. If you insert pipe of a syringe into the trunk of the inferior mesenteric vein a person who had laboured under piles, the piles become dilated largely with the injection. I know that some have hel different opinion concerning the formation of these tumours, a have supposed that they were not composed of dilated veins: I I apprehend that they have been misled by examining the pa in the advanced stage of the disease. If you wish to know wl any disease really is, you must make your dissection of it in origin; for in its progress, one morbid change is followed another, and when a disease has lasted for a considerable tin you find various appearances in addition to those which existed the first instance.

Those ultimate changes which take place in cases of piles, exactly similar to those which occur in connection with varic veins of the leg. You know that at first the veins of the leg simply varicose, or dilated; that at last they become inflame that lymph is deposited in the cellular membrane surroundi them, and that at last there is a great mass of induration, which the diseased blood-vessels are, as it were, imbedded. it is with the veins of the anus and rectum. At first they l come simply dilated; repeated attacks of inflammation cause effusion of lymph into the adjacent cellular texture, and th the pile appears like a solid tumour; in the centre of whi however, you still find the dilated vein in which the dise originated.

I have divided piles into internal and external; but, in fact, is the same veins which are affected in both cases. The vei run on the inside of the sphincter muscle, and where the muse compresses them there can be no dilatation of them; it is

hibit the sixteenth of a grain of bichloride of mercury in a certain antity of tincture of cantharides, in a draught three times daily, d such plan of treatment will sometimes be useful. But it is right state that in a great number of cases of chronic paraplegia the sease is incurable. The disease, however, may go on for years fore it ascends to the brain and destroys life.

I have described to you paraplegic affections occurring in cases f hysteria. These instances are not very uncommon, but paraysis arising from hysteria is very different from that originating rom organic disease or pressure on the spinal cord. In hysteria he evil is not that the muscles do not obey the will, but the will s not exercised. It is a remarkable circumstance that a woman will be paralytic, think that she cannot use her limbs, and yet on something exciting or agitating her she can walk very well; and sometimes what is supposed to be paralysis in hysterical women is altogether a cheat. A young lady was supposed to be paralytic in her lower limbs, but on some one going in to look at her, they discovered her standing on a chair to reach down her bonnet. It is right that you should be aware of the tendency to practise deceit in all hysterical persons, and that you should make allowances for it; for it is a curious fact that some of those who are prone to deceive about their complaints turn out very well afterwards, and constitute some of the best members of society. One person will pretend to pass gravel which she has picked out of the earth; another will pretend to pass black urine which she made black by mixing ink with it; and another will pretend to be paralytic who is not paralytic at all. You should never expose these patients if you can avoid it, but try to get their attention directed to other things; for if you expose them, even to their own families, they will scarcely ever recover their character, whereas when the disposition to hysteria is removed, many of them become excellent persons.

As this is not a systematic course of lectures, I am not particularly careful about the order in which I bring the subjects before you; and I shall conclude this lecture by adverting to some other

could not be certain, from my own observation, that they productive of it at all. The fact is, that those who are habitu taking aloetic purgatives are persons with costive bowels, wh I have already mentioned, are just the individuals most liabl this disease.

The symptoms which are produced by piles differ accordi as they are internal or external; and also according to the st of the disease. In the origin of the disease, when the piles e only in a slight degree, the patient complains of a sense of h and itching about the anus; and every now and then, w he is costive, the external piles become a little swollen tender; the internal piles become swollen, also, so as to fill the cavity of the gut, thus exciting a sensation as though a st or some other foreign body, were lodged in it. The external p sometimes inflame, swell, and become tender, so that the pati can scarcely bear them to be touched, and cannot walk with difficulty. They may continue thus inflamed for some consider time, and then the inflammation may subside; the piles gener returning to the condition in which they were before the attac inflammation came on, but not always.

Sometimes an abscess forms in one of these inflamed exte piles, and bursts externally. The abscess may be troublesom heal, but when it is healed it is found that the cavity of the is obliterated, and that it is, in fact, cured. Such an absces I have just mentioned must be distinguished from a fistula in a from which, indeed, it is essentially different, as I shall exp more fully hereafter. Sometimes, when an external pile is flamed, the blood in it becomes coagulated, and it is then har the touch. If under these circumstances, you slit open the with a lancet, there comes out a mass of hard coagulum, perl as large as a pea or a horse-bean; the cavity inflames, suppur and granulates; the same thing happens as though suppura had taken place in the first instance, and the pile is obliter But if you do not slit open the pile, and leave the disease to its own course, the cavity being blocked up by the coagulum,

vein becomes obliterated, after which the coagulum is gradually absorbed, and the pile is cured; that which was a pile before being now converted into a flap of skin. Just the same circumstance happens with varicose veins of the leg, where sometimes there is a natural cure, in consequence of the coagulation of blood in the dilated vessels. Sometimes, when a pile is thus distended with coagulated blood, the skin becomes so much attenuated that it gives way in some one point, and the blood being gradually squeezed out, suppuration probably takes place; and the case proceeds just the same as if you had opened the pile with a lancet. It is very common for external piles to undergo a process of natural cure in one or other of the ways which I have now described; and by examining the parts, you may ascertain whether these changes have taken place, as every one of them after the cure is effected. becomes at last converted into a fold or flap of skin. Thus, if you see a patient with three or four loose folds of skin at the margin of the anus, you may know that these were formerly piles. At first these folds of skin are large, loose, and pendulous, but gradually they become contracted, till at last they give no sort of inconvenience to the patient.

Internal piles, as I have already told you, in slight cases produce heat and itching; and when inflamed, they give rise to a sensation as if there were some foreign body lodged in the rectum. Sometimes they are so much distended, that the gut is incapable of containing them, and they are pushed out through the anus, forming a tumour, which, while it projects externally, is still covered by the mucous membrane of the bowel. When internal piles are large, they always protrude when the patient goes to the water-closet, and afterwards go up spontaneously. If they be larger still, after going to the water-closet they will not return spontaneously, but the patient is under the necessity of pushing them back with his hand. If they be larger still, they come down at other times, especially when the patient is walking, so that he cannot well take any exercise. Sometimes you see one small internal pile permanently protruded, forming a red vascular

tumour of the size of the extremity of your little finger. This is painful, and otherwise very troublesome to the patient, by keeping up a great and constant discharge of mucus. Sometimes there is a large protrusion of internal piles for several days, then they gradually become reduced in size, and go back into their proper place above the sphincter muscle. In short, with respect to the protrusion of internal piles, there are all possible varieties of circumstances: they may protrude occasionally, for a short time or for a long period; they may be constantly protruded; or there may be a large protrusion at one time, and a small constant protrusion besides. Whenever the protrusion, be it large or small, takes place, there is an abundant secretion of mucus from the rectum; the piles themselves are sore to the touch; the surface is red and vascular; and if you put your hand upon them, you find that you can diminish their size by pressure, but the moment you take off the pressure, they are as large as ever.

In the state which I have now described, internal piles are not unfrequently confounded with prolapsus of the rectum—nay, in general, patients, and even most medical men, describe the disease under this appellation; but the term is improperly employed. There is prolapsus of the rectum independently of piles: the disease may even originate in piles, and yet, when once established, it is entirely different from them. In a genuine case of prolapsus of the rectum, the gut itself comes down sometimes several inches in length. When internal piles protrude, of course that portion of the mucous membrane of the bowels covering them is pushed down, because they could not come down without it; but you will easily understand that this is entirely a different matter from the whole length of the rectum, or even a large portion of it, coming down of itself. The distinction between these two diseases is very important, and you should be careful not to confound them together.

Internal piles, in the state which I have just described, give the patient a great deal of inconvenience; besides which, they are liable to irritate the neighbouring parts—sometimes producing

the frequent desire to make water, at other times inducing spasm in the muscles which surround the membranous part of the urethra, so as to cause complete retention of urine. Internal piles in this state are liable to discharge a large quantity of blood; and hence it is that they have their name of hæmorrhoids. You might suppose that the blood was venous, but it is arterial. Piles do not bleed in the early but in the advanced stage of the disease, when there is an increased determination of blood not only to the veins but to the mucous membrane and cellular texture by which they are surrounded.

The quantity of blood lost from internal piles varies in different cases: sometimes there is a little tinge of blood when the patient goes to the water-closet, and nothing more; at other times a large quantity is lost every time he goes there, so that as much as six or eight ounces are voided daily; and then there are the usual consequences of hæmorrhage—the patient is weak, his countenance blanched, and his appetite voracious. I have known cases in which the patient was in danger of becoming dropsical, in consequence of the profuse loss of blood going on for a considerable time.

Inflammation sometimes takes place in internal piles, and ends in suppuration. The patient complains of a little discharge of matter from the anus, and you find, in addition to the mucus, that there is a little yellow stain of pus on his linen; and at first you would suppose there was a common abscess about the rectum, such as produces a fistula in ano. But if you introduce your finger into the rectum, you feel a small orifice in one of the internal piles, and if you pass a probe with a light hand, it goes to the bottom of the abscess, which is perhaps a quarter of an inch in depth, or thereabout. The parietes of the abscess, however, are very thin and weak, easily broken down, and if the probe be not lightly introduced, it will run through them into the loose cellular texture external to the mucous membrane. The cellular texture also is very loose and yielding, offering scarcely any resistance to the probe, so that it will run in every direction; and hence it is that

I have sometimes known a small abscess or internal pile to have been mistaken for a very long sinus. You ought to be very careful not to fall into this error, which you might easily do—nay, in all probability would do—in the first case of the kind that occurred to you, if I did not give you this caution.

I have mentioned that there is sometimes a natural cure of external piles; and I will now state how a natural cure of internal piles may take place also. Where piles of a large size protrude, completely filling up the orifice of the anus, the sphincter muscle is contracted upon them like a ligature, and causes them to become more swollen than when they were first protruded; just as a ligature on the arm makes the veins of the forearm and hand turgid previously to venesection. But the piles may be larger still; the sphincter muscle may contract more powerfully upon them; and then the pressure not only interferes with the return of the venous blood from the pile, but prevents the entrance of arterial blood into it. It acts as a ligature acts in a surgical operation—on a polypus of the uterus, for example. There is not a sufficient circulation in the protruded piles for them to retain their vitality; mortification takes place, sloughing follows, and thus the piles are destroyed. I have known several cases cured in this manner, and there is little or no danger in the process. I have sometimes known medical men to be alarmed at a case of this kind, confounding it with those of mortification from other causes; but the alarm is without foundation. The late Dr. Pearson, who was for a very long period of time physician to this hospital, was the physician of the celebrated Mr. Horne Tooke. Many years ago I was dining with Dr. Pearson, and after dinner he gave an account of Horne Tooke's illness. He said that he had long laboured under piles; that at last mortification had taken place; that there was no chance of his recovery; and he added, that he had that morning seen him for the last time. I remember that in the middle of this history there came a knock at the door, on which Dr. Pearson said, 'Here is a messenger with an account of my poor friend's death.' However, it was some

other message; but by-and-by a messenger did arrive, saying that Horne Tooke was much the same, or a little better. It turned out, as I have been informed, that the piles sloughed off, and that from this time he never had any bad symptom. In fact, he was, if I have been rightly informed, cured of a disease which had been the misery of his life for many years preceding, and he lived for some years afterwards.

Treatment.—In considering the treatment of piles, we will first suppose that you are consulted when the disease is in its earliest stage. The patient complains of a sense of heat and itching about the anus, and perhaps there is already a slight protrusion of the piles. You may cure him, in general, by a very simple process. Keep the bowels gently open; take care that he is not costive on the one hand or violently purged on the other. The best aperient for this case is the following:—One ounce and a half of confectio sennæ, half an ounce of sulphur precipitatum, and then mel rosæ, as much as is necessary to make an electuary, and let the patient take about a tea-spoonful, or what he finds necessary, of this, every evening. This is all that is wanted in many cases; but at the same time he should avoid drinking much wine; and if he be of sedentary habits, he should, if possible, alter them, and take exercise. If this should not relieve him, in addition to what I have just mentioned, let him inject half a pint of cold water, fresh from the pump, as a lavement, every morning after breakfast, and keep it up as long as he can. This will give him immediate comfort, but it requires to be persevered in for many months; and perseverance in this plan of treatment will sometimes make a cure even of very bad cases of piles. You may, if you please, add something to make the water more astringent, as alum, the tinctura ferri muriatis, or the patient may use cold lime-water. A friend of mine, a practitioner at this end of the town, informed me that for many years he had used cold lime-water in cases of piles, with the best result; and I have employed it in several instances lately, in which I think it has been serviceable.

There is a medicine that is very often useful in those cases

where these simple expedients fail, namely, the confectio piperis composita, which is similar to what was once very celebrated as Ward's paste. It is composed of black pepper, fennel seeds, elecampane, and honey: and the dose is a piece of the size of a nutmeg three times a day. It is like eating coarse gingerbread; it may be a little disagreeable to be taken, but still it may be taken easily enough; and the patient must persevere in its use for a considerable time. Very severe cases of piles are sometimes cured by it. A lady came to me with one of the worst cases of this disease that I ever saw; the piles were so large, and protruded so constantly, that I did not think there was any chance of curing her, except by the operation to be hereafter described, and I advised her to submit to it. She said the piles made her miserable, and she should be very glad to be cured on any terms; but she was compelled to pay a visit in the country, which would render it necessary to delay it for a month. I thought the delay for a month could not hurt her, and under these circumstances I recommended her to give Ward's paste a trial, and see what it would do for her. I heard nothing more of her for six or eight weeks, when she came back, and said she was happy to inform me that she had taken the paste regularly, and was now quite well. It is of no use to take this remedy for a week, a fortnight, or a month; it must be persevered in for two, three, or four months.

How does the Ward's paste operate? I know a case in which a patient, labouring under stricture of the rectum, had indiscreetly taken an immense quantity of Ward's paste, and in which the colon was found quite full of it after death. It is evident, that, except any small portion which may be digested, the Ward's paste passes into the colon, and that it must become blended with the fæces; and I suspect that thus coming in contact with the piles, it acts upon them as a local application; much as vinum opii would act upon the vessels of the conjunctiva in chronic ophthalmia.

In confirmation of this view of the modus operandi of Ward's paste, I may mention an observation of the late Sir Everard

Home. He had a patient labouring under piles, and he recommended him to take Ward's paste. The patient, little thinking that something put into the stomach was to cure disease in the rectum, crammed as much as he could bear of it up the rectum. I dare say it gave him a great deal of inconvenience, but, as Sir Everard Home reported, it cured him; and Sir Everard said that since then he had used it as a local application in some other cases, with manifest advantage.

I mentioned that a patient with stricture of the rectum had indiscreetly taken a large quantity of Ward's paste, and that the remains of it were found distending the colon after death. I recall your attention to this circumstance now, because it will serve to impress upon your minds the necessity of always giving the patient some gentle aperient occasionally at the time that the Ward's paste is being taken. This is not the only medicine of this description which may be used in cases of piles. Cubebs pepper, a scruple three times a day, may be given with advantage; it operates, I suppose, in the same manner as Ward's paste. In some cases of this disease, where there is a great deal of irritation, the patient will derive benefit from copaiva combined with caustic alkali; half a drachm of balsam of copaiva, with fifteen drops of liquor potassæ, may be rubbed down with two or three drachms of mucilage and cinnamon water, and taken three times a day. This answers a very good purpose, soothing the piles, and keeping the bowels gently open at the same time.

If you are called to a patient when the external piles are inflamed and swollen, your best way is to make him remain quiet in the horizontal posture, which takes the weight of the column of blood off the piles. You may, if you please, apply leeches in the neighbourhood, but not on the piles themselves, for the leech bites will cause them to become inflamed, and to fester; or, if the piles be much distended, you may puncture them with a needle. Acupuncture, on the whole, relieves the patient more than the application of leeches; and there are these advantages in it, that the puncture of the needle does not cause the piles to fester, and

that the relief is immediate. By puncturing them in several places you let out a large quantity of venous blood, and the benefit arising from this is great. Besides this, you may keep a piece of rag constantly applied to the part, wetted with some cooling lotion; and the patient should take some gentle aperient, active purgatives being avoided.

When internal piles are inflamed, swollen, and protruded, you should try first of all to push them back into the gut. Take a cambric handkerchief, or a soft old linen rag, squeeze out the blood from the piles, and if you can, return them into the bowel, it is so much the better; it will relieve the patient very considerably. But if you cannot push them up, or if, when pushed up, they immediately come down again, you should then keep the parts wet with a rag bathed with a cooling lotion, let the patient remain in the horizontal posture, and keep the bowels gently open, without purging. Here, also, as in the case of external piles, the patient will derive much benefit from acupuncture in several places. Punctures made with a needle, neither on this or any other occasion, so far as I know, occasion inflammation or any other inconvenience; they evacuate the blood, relieve the tension and swelling, and do a great deal of good without any harm.

The observations which I have now made relate to the treatment of piles under ordinary circumstances. In more aggravated forms of the disease the patient must be relieved by an operation.

Different methods have been proposed for destroying hæmorrhoids by operation: some surgeons have practised and recommended that by excision, while others have preferred the removal of them by ligature; others speak of the ill consequences attendant on each of these modes of operating.

It appears to me that the question respecting the operation and the proper rule of treatment has been very distinctly and correctly laid down by Sir Everard Home, in a paper on that subject, at the end of his work on Ulcers of the Legs. He states the matter thus:—That external piles which are covered by the skin ought

deavour to introduce the finger behind the glottis, and if you can do that, seize the bone with the forceps. You must be prepared with different kinds of forceps, some of which open laterally. It may be that the foreign body lies with two flat surfaces, one to one side and the other to the other, and then the forceps that open laterally answer best. If it be in the other position, with the flat surfaces looking forwards and backwards, you must have forceps which open in another direction. You may sometimes employ shorter forceps, and in other cases longer, but they should be of tolerable length.

But let us suppose that the foreign body cannot be felt with the finger, are you then to attempt to take hold of it with the forceps? Really, to extract a foreign body from the œsophagus, below the part at which you can feel it with the finger, would be a very difficult operation, and probably not a very safe one; for, in poking with the forceps, you might carry them through the coats of the œsophagus. It might require great force to drive a bougie through them, but much force would not be required in order to drive through them a strong body made of steel. If the foreign body be low down, and you are to extract it at all, you must do it by other means; but probably it will be best to push it on into the stomach. If it be small enough to pass the œsophagus, it certainly will be small enough to pass the pylorus; at least, in all probability. You may push it into the stomach best by means of a common bougie, or what is called a probang—a piece of whalebone with a sponge at one end. This is to be introduced into the œsophagus and pushed down towards the stomach. It may operate in two ways. It generally acts by the sponge pushing the substance into the stomach; at other times, if the foreign body do not occupy the whole diameter, but only impinges by its two shoulders, the probang may be passed below it, and as you pull up the sponge the foreign body may be drawn up with it. You make a sort of blunt hook, to be fastened to the whalebone, the intention of which is, that it should be passed below the foreign body, and the foreign body dragged up by the blunt hook. The best

then a case occurred in which the patient lost a great dea blood; in another case, the hæmorrhage was so great that patient nearly died; and then a third case occurred, in which the patient lost an enormous quantity of blood—so much, th now only wonder that he did not actually die. Since then I h never removed large internal piles except by ligature.

The removal of external piles is very seldom necessary; t are generally complicated with internal piles; and if you cure former, the latter, which are a continuation of the same veins, be cured also. However, there are cases in which it is righ remove external piles by excision. For example, where they enlarged and inflamed, so that it will take a great deal of tim subdue the inflammation, and the patient is all the while suffe pain, he may be relieved at once by two or three snips of curved knife-edged scissors. Or if an abscess has formed i external pile, which bursts, discharges, and closes at the ori then bursts and discharges again, it may be worth while to cu the pile and the abscess with it.

The excision of external piles is easily accomplished by m of the scissors which I have just mentioned. You take hol the pile with the double tenaculum, elevate it a little from base, and then snip it off. If there be a little artery blee considerably, you take up the vessel as you would any other surface.

I have said that internal piles are to be removed principall ligature. You will observe I do not say they are *never* t removed otherwise. The fact is, that when internal piles small, it is not worth while to tie them; and they may u these circumstances be excised with perfect safety. Such a ca this will frequently occur—a patient complains of symptom internal piles; he has always pain about the anus, and a disch of mucus. You examine the parts, and find a pile, not la than the end of your little finger, covered with the mucous m brane of the bowel, protruded, and, as it were, sticking in orifice of the anus. You take hold of it with a double tenacul

lodged in it; and other cases are upon record where the foreign body has occasioned suppuration of the œsophagus and an abscess in the neck, and on opening it the foreign body was found in the cavity of the abscess. Such instances, however, are very rare; and on looking over the cases recorded in the 'Memoirs of the French Academy of Surgery,' where there is a large collection presented, drawn from the authors of all ages, I do believe that, in the great majority, where the operation has been performed for the removal of foreign bodies from the œsophagus, the patients would have done much better if they had been left altogether to nature, and to the operation of their own powers.

Now, supposing the foreign body to have got into the stomach, what will it do there? Why, small bodies over and over again get into the stomach and come away. If it be a sixpence, or a farthing, you may be pretty sure that in the course of two or three days it will be found in the evacuations. It is astonishing what foreign bodies will pass through the stomach, and go through the intestines, without doing harm. A gentleman, in a paroxysm of insanity, swallowed a pair of compasses three inches in length, and the family sent to me in great fright. The compasses had not stuck in the œsophagus, but had gone into the stomach. To think of looking for them there was quite absurd, and I told them to let him alone. He must have swallowed them with the blunt end forwards, and the probability was that they lay towards the pylorus. In the course of a fortnight, without his having suffered even a colicky pain, they one day found the compasses in his close-stool pan. He lived a considerable time afterwards, and never suffered any inconvenience from this exploit. Several persons have been in the habit of swallowing large bodies, and getting money for exhibiting the feat. A sailor, in America, in a drunken fit, swallowed a large knife. It went into the stomach, produced some colicky pains for a few days, and was then voided per anum. Two or three days afterwards he did the same thing, and finding that people stared at him and gave him money, he went on with it. People went on purpose to see this exhibition of swallowing knives

You have now only to complete the double knot upon each of the ligatures, and cut off the threads close to the knots, returning the piles, ligatures and all, into the rectum. It is a very simple operation; and except when the piles are in a state of inflammation, attended with but little suffering. You are to take care, in performing it, to keep all the ligatures clear of the external parts, for if they include any of the skin, the patient suffers a great deal of pain, and much inflammation will supervene. I generally give a pretty active dose of rhubarb the day before the operation, so that the bowels may be well emptied, and that the patient may afford to go for two or three days after the operation without having an evacuation.

It very seldom happens that inflammation or fever follows the use of the ligature, and the threads generally separate at the end of a week—not that I look for their separation, for it is of no consequence whether they come away a day sooner or a day later. I never trouble my head about the ligatures after they have been once applied; but if you choose to look for them, this is the time at which you will find that they usually come away.

But the patient must now take measures to prevent a recurrence of the disease. For this purpose, when there has been time for the sores left after the separation of the ligatures to have healed, I recommend him to take some lenitive electuary and sulphur every night, so as to keep the bowels gently open, and to use a lavement of cold water every morning.

I conceive that this is not only one of the most effectual, but one of the safest operations in surgery. I should think I must have performed, or seen it performed, between 200 and 300 times. I saw one patient who died after the operation, in consequence of diffuse inflammation of the cellular membrane running up on the outside the gut as high as the mesentery; but that was a patient whose constitution was broken down by long-continued hæmorrhage, and in whom any slight accident might have produced equally bad consequences. I saw another patient, who, a week after the operation, and having been quite well in the

interval, had an attack of pain in the abdomen, and shivering attended with fever, and died. I was not allowed to examine the body after death. I could not make out at the time that the symptoms had any connection with the operation, nor do I believe that they had; but I mention the case because, as the body was not examined after death, I have no certain knowledge on the subject.

With the exception of these two cases, out of all the 200 or 300 patients whom I have known treated in this manner, I never knew any ill consequences to arise. I contend, then, that the operation is as safe as any operation can be expected to be. You are not to suppose that even the slightest operations in surgery are absolutely, in all cases, free from every particle of danger, any more than the slightest accident. I have known two patients die after the extraction of a tooth, and I have known several die in consequence of venesection at the arm, or an accidental prick of a finger. The chance of danger from this operation at any rate is so trifling that you need not calculate upon it. If you were to calculate upon so small a chance as this, you would scarcely be able to do anything in the common affairs of life.

Supposing a person has piles which come down when he walks, which are constantly teasing him in this way, and yet he cannot make up his mind to submit to an operation, or that there are any circumstances that lead you to think it better not to have recourse to it, still you may do something for his relief. There is a machine made for the purpose of supporting the bowel, and preventing the protrusion of the piles. It is sold under the name of a truss for the prolapsus ani, the makers of it confounding, as I have told you is often done even by surgeons, internal piles with prolapsus of the rectum. It is made with a spring which fits round the pelvis, and so far resembles a spring truss for a hernia; but at the back part, fixed at right angles to the circular spring, there is another spring which descends behind the sacrum, taking the course of that bone, and terminating below in a pad, which rests on the anus. The elasticity of the spring supports

bougie into the stomach, but could not feel it.
a probang with a sponge, but with no better
woman had the sensation of its being there
doubt whether it really stuck there, and to sus
tion she experienced indicated that some part
had been abraded or torn by the foreign body
itself had passed into the stomach. It is a
conjurors to put a half crown into the hands of
it firmly, and then to say to him, 'You are sur
party says 'Yes.' In fact, he has the feeling
opens his hand it is not there. The sensation m
on the hand remains a considerable time after
been removed, especially if the feeling be assis
nation. You get a piece of sand or gravel i
taken out directly, but you persist in saying th
a little inflammation of the eye produces a feel
body were on the conjunctiva. So I thought it
patient, who imagined that she had a bone
which she could not swallow. Under that imp
an opiate blister; and, under its influence, the
the next day, very much abated; and, on the f
entirely removed. I think that the rapid s
symptoms under this treatment, proved that the
injury inflicted, and not on the foreign body re

all these parts, are not so much developed as in the adult. The attachment of the rectum to the surrounding parts does not extend so high in children as in persons of mature age, while the reflection of the peritoneum takes place lower down, and hence the rectum is more liable to be pushed out.

In adults prolapsus of the rectum sometimes occurs as a consequence of piles. The patient having been liable to the protrusion of internal piles, and the sphincter muscle having been thus continually dilated, the rectum is more liable to slip out, as you may well suppose, than it would be if this dilatation had not taken place. However, in grown-up persons the disease is comparatively rare. I see it every now and then, but very seldom; and where you meet with it in the adult, it has generally begun in early life.

When prolapsus of the rectum is combined with internal piles, you will see the latter at the upper part of the prolapsus—that is, close to the orifice of the anus, forming a zone around the gut; and the colour and appearance of the mucous membrane covering the protruded piles are altogether different from that of the membrane covering the rest of the gut.

The inconvenience which the patient suffers from prolapsus of the rectum varies very much in different cases. Sometimes it comes down occasionally after a costive motion only, and is easily pushed up; and when pushed up it remains in its place till some accidental circumstance brings it down again. In other cases you return it, but the moment the patient begins to walk about, down it comes again; and in instances of long standing, the bowel becomes so fixed in its unnatural position, that you cannot return it by any means, and then other inconveniences follow. The rectum having been constantly protruded, becomes inflamed from friction, ulcerated, sore, tender, painful; and where the protrusion has existed for a long time, you will find it covered by a kind of cuticle.

Treatment.—When you are called to a child labouring under prolapsus of the rectum—and these are the cases that you most

frequently meet with—you will almost invariably relieve hi the following manner:—Purge him with calomel and rhul occasionally; be very careful about his diet, that he does not a great quantity of vegetable substance, which tends to fill the cavity of the bowel, while it affords but little nourishm and every morning let some astringent injection be thrown The injection which I have generally used is a drachm of ti ferri muriatis, in a pint of water; and two or three ounce more of this, according to the age of the patient, may be inje into the rectum every morning, the child being made to reta as long as possible. I never saw a case of prolapsus of the rec in a child, whch was not cured in this manner.

If you are consulted about an adult labouring under this dis and it has been consequent on a protrusion of piles, the first t to be done is to destroy the piles. Let the patient sit over a of hot water, and the sphincter muscle being relaxed and the distended with blood, the piles and rectum will all prot together: you must then tie the piles, which you can easil your assistant holding the rectum on one side, while you a the needles and ligatures on the other. Having tied the you return the rectum into its proper place; and you probably find, that in curing the piles you have also rem the prolapsus of the bowel. But if the patient neglects hi afterwards, as the piles return so the prolapsus returns them.

Where the disease is not complicated with piles, in those which occur occasionally in which prolapsus of the rectum begun in early life, and has continued to adult age, the is very difficult and perhaps impossible. The patient mu retained in the horizontal posture, for then the rectum is less likely to protrude than when he sits up: he ought not up even for an evacuation, but should have a bed-pan. Wher the rectum protrudes, it should be pushed up again; an astrin injection should be employed daily, and the patent should be through a course of Ward's paste. This plan affords him the

chance of a cure which he can have, but I will not say that it will always be successful. I remember trying it for a great length of time in a woman in the hospital, and, after lying many weeks in bed, when she got up the rectum came down as before; nay, it came down sometimes when she was in bed, even in the horizontal posture. In these cases, however, you may employ with advantage the truss for prolapsus of the rectum, which I mentioned as applicable chiefly to bad cases of internal piles. There was a patient in the hospital (a soldier) who had, I suppose, eight or ten inches of the rectum constantly protruded, and it could not be returned. After trying various means for a length of time, he left the hospital as bad as when he came in, and I do not know what became of him. It occurred to me afterwards, that in such a case as this it might be advisable to apply ligatures, and then cut off the protruded gut; for though the disease is not immediately dangerous, yet it must be regarded as ultimately so; and it might be worth while for the patient to run some risk at the time, for the chance of subsequent cure. I do not know that such an operation has ever been performed; but is it not deserving of consideration whether we ought not to have recourse to it in certain cases? There is a natural cure of bad cases of intro-susception, the analogy of which is in favour of the practice which I have just suggested. In the cases to which I allude, one portion of gut being protruded into another, the protruded portion is constricted by the edge of that into which it has passed; the circulation in it is stopped, and it sloughs away as if a ligature had been put round it. In this manner a portion of gut, eight or ten inches in length, has sometimes come away, and the patient has lived and done well afterwards. Several cases of this kind are on record; and I once had an opportunity of dissecting a patient who died when the sloughing process was taking place. If such an operation as I have proposed were to be had recourse to, the gut must be included in several ligatures, so that the orifice of it [illegible] ructed, as it would be by a single one.

Excrescences of the Rectum.

Excrescences of various kinds take place on the inner surface of the rectum, which patients are very apt to mistake for piles. Here is one [presenting a specimen]—a sort of polypus. It is, as you see, of a small size, but I have seen them as large as the finger. It seems to be of the same structure as the polypus of the uterus. This kind of excrescence is by no means uncommon. Sometimes there is a single one; at other times there are two or three growing from the mucous membrane. In some instances they occasion the patient scarcely any inconvenience, while in others they give rise to the most extraordinary suffering. What is it that makes this difference? The patient suffers in those cases in which the excrescence comes down when the bowels act, and gets pinched by the sphincter muscles. Under these circumstances it is liable to become ulcerated, and then the pressure of the sphincter and always induces excessive pain, which continues not only till the excrescence recedes, but for some time afterwards. A lady sent to me, complaining of what she called very bad piles. On examining the rectum, I discovered a little polypous excrescence, in a state of ulceration, sticking in the sphincter muscle. I took hold of it with a pair of forceps, and snipped it off with the scissors. She felt hardly any inconvenience from the operation, but, to her surprise, though she had been enduring a great deal of pain, and had been miserable for months, from this moment she was well. A lady, not long since, came to my house, from a distance in the country, in whom most severe sufferings were occasioned by one of these polypi being ulcerated and entangled in the sphincter muscle. I immediately snipped it off; she was completely relieved; went home, I believe, on the same day, and I have no doubt has been quite well ever since.

Excrescences of the rectum sometimes take place, of a large size, which are not of a malignant nature, such as you see here [exhibiting a preparation]. This I removed from an old lady,

rdener in the country; he had a stricture of the urethra, there is difficulty in making water, and occasionally he used to pass a ower-stalk as a bougie and relieve himself. One day, the flower-alk broke, it remained in, and formed the nucleus of a stone, alf in the bladder and half in the urethra. I operated on a young an for stone in the bladder, and on cutting through the stone here was a large piece of common wax in the centre. The reparation, I believe, is in the museum. This was a very foolish oung man, as you may suppose, who happened, unluckily for imself, to have a wide urethra, and in some fit of folly he rolled up a piece of wax, introduced it into the urethra, and it gradually found its way back to the bladder. I saw him at the time, and, as I supposed that the wax had gone into the bladder, I recommended him to keep quiet, and let the case be thoroughly investigated. But he was engaged to go to India; he did not suffer inconvenience, as if from the wax in the bladder, though we had a right to conclude it was there, and, contrary to my advice to keep himself quiet, he sailed for India. He came back two years afterwards with a stone in his bladder. A more extraordinary case occurred in the practice of Mr. Keate: I saw the patient with him and assisted in the operation. A gentleman had symptoms of stone in the bladder, and on cutting into that organ he found that there was no stone, but a great piece of common sealing wax, of which he drew out several inches in length. This monstrous blockhead—for so I must call him—being tipsy, thought he would pass a bougie for himself. He imagined that wax was wanted for a bougie; he therefore procured the sealing wax, softened it by the fire, rolled it up into his hands into the shape of a bougie, introduced twelve or thirteen inches through the urethra into the bladder, and there it lay coiled up.

Foreign bodies may get into other parts of the human frame. A musket-ball, for instance, may lodge in it for many years, doing no harm. A gentleman of my acquaintance was wounded the day before the battle of Waterloo. There was the hole at which it entered, but none at which it appeared to have escaped, so that it

and distress to the patient, or not at all. Now
this state of things sometimes actually exists, a
precisely what I have mentioned. The contractio
at first appears to be merely spasmodic, without a
of its condition; but you know, that in proportio
called into greater action, so they become increas
in conformity with this general rule, when spasm
of the sphincter muscle has existed for a long
becomes considerably larger than it was in its nat
the disease existed.

This disease is not of uncommon occurrence.
chiefly in women, especially those who are dispo
It is, however, met with in other women, and s
male sex.

The patient, under these circumstances, is forc
much in passing her evacuations; and this is esp
when the fæces are hard, or even solid. There is pai
the fæces are being passed, but for a very consid
time afterwards; and in some cases the pain will
period of one alvine evacuation to that of anothe
constant, or nearly so. It is remarkable what mise
suffer under the circumstances which I have just d

In connection with spasmodic contraction of the
cle, you will frequently find a small ulcer of the mu
of the rectum. This ulcer is always in a particu

cases sometimes occur in which needles are taken out of man bodies in large numbers. The following case occurred in practice:—A lady, of hysterical habit, was unfortunately arried to a gentleman who became insane. Once or twice during paroxysm he very nearly murdered her. What with anxiety out him, and apprehension about herself, her nervous system, hich was bad enough to commence with, became much shaken. e died, but she remained in a frightful state—very weak in ealth, with constant nervous pain on one side, and subject to hat are called fainting fits; in fact, a sort of hysterical catalepsy —that kind of fit which is produced by animal magnetism working n the imagination of hysterical women, in which the patient ppears to be unconscious, but is not so in reality. One day she had with her a paper of needles, containing about fifty, fresh from the place where they were bought. She was by herself, she rang the bell in haste for the servant, and said that she had had one of her fits, and that the needles had run into her leg. This seemed a very odd story. Only eight needles out of the fifty were found left in the paper. It was thought they had got into the foot-stool. That was unpicked, but nothing was found in it, except a few broken pins. They looked at her leg, and seeing something they did not understand, they sent for a surgeon in the neighbourhood, who found one or two needles pricking under the skin; he opened the skin with a lancet, and took them out. In the course of two or three days other needles were discovered; he tried to take them out, but they slipped away, and I was sent for. With some trouble I removed them, and on a subsequent occasion I took out more; altogether we removed about twenty-eight needles from her leg—they were in one leg only. The leg became swollen and œdematous; and, having been in weak health before, she now became still weaker, and sank and died apparently from the mere want of nervous energy. On examining the leg I found several needles still left in it; they were not all taken out, but it would appear that there were just enough to account for those missing.

There are two points in this case to be considered; first, the

taking out of the needles which, as a practical question, is some importance; and, secondly, how the needles got there.

It may appear a very simple thing to extract needles that stuck in a woman's leg, but it is not so simple in practice: every motion of the limb makes the needles shift their situation and if, in trying to remove them, you make any pressure upon them before you seize them with the forceps, they slip away. No attempt should be made to take needles out of the human body until they are close to the surface, and when you can with a light hand feel one end of them under the skin. You may then venture to puncture the skin with a lancet, and take care to pass, if possible, by the side of the needle, so as not to make pressure upon it. When you see the black point of the needle take hold of with forceps and extract it. With a light hand you may take out a needle; but if a surgeon be rough, the needle slips away, and extraction is impossible.

But how was it that the needles in the case in question entered the leg? There is only one way of explaining it, namely, that she run them in herself. It is ridiculous to suppose that a pair of needles could run in by themselves. In this state of hysterical catalepsy the patients are not insensible. You know how girls who are magnetised deceive and cheat. They pretend to read with the back of their head, and prophesy all sorts of stuff and it is just the same here. This woman was humbugging her in one way as they do in another. I have no doubt that she run the needles into her leg herself. I can conceive that one needle or two may run in by accident; you may sit down on a

being cupped. I have known the bite of a leech, and the sting of a wasp, and the prick of a pin, to prove fatal; and I have lately had the misfortune of losing a patient after the division of the sphincter ani muscle. The case occurred in a lady of a peculiarly susceptible nervous system. Immediately after the operation she fell into what might be called a state of hysterical syncope, from which she did not recover until after the lapse of three or four hours. She died at the end of a week, with inflammation of the pleuræ and peritoneum, which had caused a very large effusion of turbid serum into the cavities of the chest, and a smaller effusion into that of the abdomen also. There was no inflammation of the rectum, nor of the cellular membrane or other textures in immediate connection with it; and it was evident that the pleuritic and peritoneal inflammation had not extended from the part on which the operation had been performed, but that it had been the result of the impression made on the system generally. I cannot so well compare the case to anything, as to one of puerperal fever.

Ulcer on the Inside of the Rectum.

The ulcer which occurs in connection with a contracted sphincter muscle, in some instances exists independently of it. You may discover it on the posterior part of the rectum, opposite to the point of the os coccygis; and, as I have already stated, it occurs, for the most part, in persons who have costive bowels and hard stools, the mucous membrane being under these circumstances lacerated by the pressure of hard evacuations. When once produced the ulcer is very difficult to heal, and very frequently it goes on spreading till it becomes of considerable size. It is a superficial ulcer, of exquisite sensibility, and great pain is always produced by the passage of the fæces over it, lasting for a considerable time after each evacuation. In some instances, considerable hæmorrhage takes place from an ulcer of this kind.

according to their shape, and their particular position. T foreign body may be so large that it descends to the bifurca of the trachea, and it will not go down farther. It may be large that it nearly fills up the diameter of the trachea, but th is not often the case, for a body that is small enough to go throu the glottis will seldom be of sufficient size to fill up the trach Besides that, if it be broad, it seldom lays directly flat across, b obliquely, and then there is a space on each side. Again, it m be very light, so that it rises up at every attempt to cough; a may be very ponderous, so that it remains always at the m depending part. It may be small enough to pass down into of the subdivisions of the trachea, and if it do, it generally pas into the right bronchus, because that is the wider, and lies m nearly in a line with the trachea than the left. Supposing body to be light, such as a cherry-stone or an almond, and smo and being smooth, movable, it may lie at the bottom of trachea, and the patient experience no inconvenience fro until a fit of coughing is excited. Several instances have occu in which a small foreign body has been coughed up again thr the glottis; and in other cases, being raised by the act of co ing, it has stuck in the glottis, strangled the patient, and prod instant death. But supposing that, without being very ponde it is of a large irregular shape, with sharp edges, and is l across the trachea, with the corners stuck in one part of passage, or of the bronchus; then it does not occasion at first r difficulty of breathing, for very probably there is sufficient s for the air to pass by its sides. But, being in the trach

t be of large size, or if small, it will descend into the bronchus. nerally speaking it passes into the latter situation; for a metal dy that is small enough to go through the aperture of the glottis ll usually be small enough to be carried by its own weight to e bottom of the bronchus.

Another question arises here. What will happen when a ponderous body—a coin or other metallic substance—lodges in the onchus? It will not cause great difficulty of breathing; for nerally it is small enough not completely to obstruct that onchus, or, at any rate, the patient can breathe with the other. may occasion coughing, and if the patient invert himself so as bring the head downward and elevate the chest, it will run own to the glottis and threaten suffocation. But the patient is no danger of suffocation if he do not put himself into a position which, not being a natural one, it is not likely that he will do. t may, therefore, remain lodged there for a long time; but what will happen at last? It will give rise to disease of the lungs. A man swallowed a louis-d'or, which got into the trachea; he died three or four years afterwards, and on examination there was found disease of the lung, the louis-d'or being in an abscess. This case is recorded in the 'Memoirs of the French Academy of Surgery.' A boy got a sixpence into the trachea; he was sent to Guy's Hospital, where it was found that his lungs were diseased, and therefore Mr. Key refused to make any attempt to remove the sixpence. A boy swallowed a tin tack; when I saw him he was expectorating pus, so that it had formed an abscess, and it was doubtful whether the tin tack was there or not. By-and-by he coughed up the tin tack, and the discharge of pus ceased, and the patient recovered.

Foreign bodies are very frequently coughed up, and it has been proposed to endeavour to expel them by making the patient cough. No doubt you can make the patient cough, and there is a chance of the foreign body being thus removed; certainly, if it is to be got rid of by natural efforts, it must be by coughing. Some have proposed to bring up the foreign body by giving the patient an emetic,

portion of the contents of the bowel escapes into the cellular membrane, inducing inflammation and suppuration, the admixture of a little feculent matter causing the contents of the abscess to be putrid. In some instances the patient dies with symptoms of strangulated hernia—that is, a piece of hard fæces is lodged above the stricture, and cannot pass through it; thus there is a mechanical obstruction to the passage of the fæces; the belly becomes tympanitic, the tongue dry; there is sickness, vomiting, and the other symptoms indicating strangulation. He may have one of these attacks, and, by means of injections and the use of the bougie, may recover; he may have a second, and recover from that; and then he may have a third, which may prove fatal. In the most advanced stage of this disease, independently of these attacks, the patient suffers much in his general health, loses flesh, perspires at night, his digestion is deranged, he is emaciated and hectic, and thus gradually becomes exhausted.

The progress of the disease, which I have thus described in a few words, is, however, lingering and tedious. The patient may die, even where no remedies are employed, after ten or twelve years of inconvenience first, and of suffering afterwards. In some cases, under a judicious treatment, although the disease cannot be cured, it may be much mitigated, and may never prove fatal.

Treatment.—When you are called to a patient with stricture of the rectum, you should first make an examination with the finger so as to ascertain exactly where the stricture is situated, how high up it extends, and how much of the gut is included in it. If the stricture be not in a very irritable and tender state, the patient may at once derive benefit from mechanical dilatation by the use of a bougie. You will ascertain the diameter of the stricture with the finger as nearly as you can do so, and introduce a bougie of proper size, through its orifice. The bougie must be allowed to remain in the stricture five or ten minutes, or in some cases for a longer time; and the operation must be repeated every day, or every other day, according to circumstances. In this manner you

will gradually be enabled, in the early stage of the disease—I will not say to restore the gut to its natural diameter—but to dilate the stricture so much that the evacuations may be readily discharged, and that the patient may suffer but little inconvenience from it. I saw not long since a lady, respecting whom I had been consulted about three or four years previously. At that time the stricture was so great, that I could introduce only a small urethra bougie. I directed her to commence a course of bougies, which her medical attendant introduced for her. They were very gradually increased in size; and when I last saw her the stricture would admit one of very large diameter; and she experienced no more than the slightest inconvenience from the complaint. Here, as in cases of stricture of the urethra, the use of the bougie must be continued. If it be neglected, the stricture will return, and be worse than ever.

In some cases of this disease you may facilitate the process of cure in the following manner. In the cases to which I allude, the stricture is situated about two inches above the anus, and occupies only a small portion of the length of the gut. It forms a circular band, embracing the finger, as narrow as a cord. A stricture of this kind may be divided in two or three parts of its diameter, before you begin the use of the bougie, in the following manner:—Introduce a bistouri caché, and let the screw be so adjusted that the blade may be opened about the sixth of an inch, but certainly not more than a quarter of an inch. The bistouri must be introduced with the blade shut; then press on the handle, open the blade, and, drawing it out, you nick the stricture first in one part of its diameter, then in another, and then in a third. This being done, a larger bougie may be introduced than could be done before, and the process of cure is very much expedited.

But in a great number of cases where the disease is far advanced (and, generally speaking, you are not consulted till that is the case, especially in hospital practice), you cannot resort to the use of the bougie in the first instance, or, if you do, it must be employed in combination with other remedies. It will be necessary to lessen

the irritability of the bowel by the introduction of an opiate suppository every night, a gentle aperient being taken in the morning. The patient may take a combination of caustic potass with balsam of copaivi; half a drachm of balsam of copaivi, fifteen minims of the liq. potassæ, three drachms of mucil. gum arabic, and about nine drachms of carraway water. A draught of this composition may be taken three times a day with very great advantage. Mr. Bryant, a practitioner in the Edgeware Road, two or three years ago, recommended to me a decoction of achillea millefolium, which I have employed in some of these cases with manifest advantage. About two ounces of the achillea millefolium may be put into a pint and a half of water. This may be boiled down to a pint, of which a patient may take a wine-glass three times a day. The achillea millefolium is sold at the herb-shops in Covent Garden; it is not in the Pharmacopœia, although it has been always a popular remedy.

Where abscesses have formed in the neighbourhood of the gut, it is of no service to lay them open. I have told you on many occasions, that if abscesses are connected with diseased structure, they are not likely to heal; and you only make the patient worse by laying them open, there being, of course, a much greater extent of raw surface after the operation than before. If these abscesses are to be healed at all, it can only be after the stricture has been fully dilated.

In some cases the fæces accumulate above the stricture, the bowel in this situation becoming distended into a large bag, forming an immense reservoir of feculent matter, always pressing against the stricture, and aggravating the disease. It is very important to empty the bowel which is thus loaded; and you can only do it in the following manner:—Introduce an elastic gum catheter through the stricture into the feculent mass above; inject tepid water, or tepid soap and water, or a weak solution of caustic alkali; and by repeating this operation, and washing out the gut with warm water every day, or every other day, you may at last get the whole of the feculent accumulation dissolved, and empty

the reservoir. When this has been accomplished, the injection of warm water should be constantly repeated, so as to prevent the accumulation taking place again.

In some cases of stricture of the rectum, I have thought that the patient has derived benefit from the application of mercurial ointment to the inside of the gut, which is easily managed in the following manner:—Let the bougie be covered with lint smeared with mercurial ointment: the bougie thus anointed must be allowed to remain in the stricture for a few minutes daily.

Your success in the management of this disease will vary very much in different cases. It will depend chiefly on the period of the disease at which you are consulted. If it be quite in the early stage, you may render the patient great service; and although you cannot cure stricture of the rectum any more than you can cure stricture of the urethra, yet you can dilate it and keep it dilated so that the patient will suffer little from it, and that it will not shorten his life. But if you are consulted in the advanced stage, when the stricture is much contracted, when the mucous membrane is ulcerated, when abscesses have formed in the neighbourhood, you can only palliate the symptoms in some degree. The patient, under these circumstances, in spite of all your efforts, will lead a miserable life, and in all probability will ultimately fall a victim to the disease.

Strictures of the rectum are commonly situated in the lower part of the gut, within the reach of the finger. Are they ever situated higher up? I saw one case where stricture of the rectum was about six inches above the anus; I saw another case where there was stricture in the sigmoid flexure of the colon, and manifestly the consequence of a contracted cicatrix of an ulcer which had formerly existed at this part. Every now and then, also, I have heard, from medical practitioners of my acquaintance, of a stricture of the upper portion of the rectum, or of the sigmoid flexure of the colon, having been discovered after death. *Such cases, however, you may be assured, are of very rare occurrence.* Inquire of anatomists who have been for many years teachers in

the dissecting room, or of surgeons who have witnessed a great number of examinations in the dead house of an hospital, and they will bear testimony to the correctness of what I have now stated.

Nevertheless, an opinion has of late years prevailed among some members of our profession that a stricture high up in the rectum is a very frequent cause of constipation of the bowels; and I have known an almost incredible number of persons who have been treated on the supposition of their labouring under such a disease, by the introduction of long bougies into the bowel. The only evidence of the existence of a stricture in these cases has been, 1st, that there was obstinate costiveness; 2nd, that a bougie introduced into the rectum could not be made to pass farther than a certain number of inches beyond the anus.

But what is the value of this evidence when compared with that which anatomy affords of the rarity of this kind of stricture? Are there not many causes of a costive state of the bowels besides mechanical obstruction? Will it be always easy, even in the most healthy rectum, to introduce a bougie more than a few inches into it? Although we call the lower bowel the rectum, you know very well that it is anything but a straight gut. Three or four inches above the anus the rectum begins to make flexures, which increase as you trace it upwards, until they terminate in the sigmoid flexure of the colon. These flexures of the rectum differ in different individuals, and even in the same individual at different periods. When a bougie is introduced, be it small or large, it is certain that it will be stopped somewhere or another by one of these flexures; and nothing can be more unphilosophical than to conclude, because a bougie meets with an impediment at the distance of five or six, or eight or nine inches, that this is the result of an organic disease of the rectum, when the natural formation of the parts will sufficiently account for it.

But let us suppose that you actually meet with one of those rare cases in which there is a stricture in the upper part of the rectum: by what means are you to recognise the disease in the living

person? Or, if you can recognise it, how can you know its exact situation? If the bougie can only be introduced to a certain distance, how are you to be certain that it is stopped by the stricture, and not by a fold of the bowel, or even by coming in contact with the sacrum?

Further than this, if you employ the force which you would suppose to be necessary to make the bougie penetrate through the stricture, is there no danger of it penetrating the tunics of the intestine instead? This last is no theoretical objection to the use of these long bougies in diseases of those parts. I will not say that I have seen the patients, but I have been informed, on good authority, of not less than seven or eight cases in which this frightful accident occurred, and the patients died in consequence.

Taking all these things into consideration, I advise you to lay it down for yourselves as a rule of practice, that you should not use bougies for stricture of the rectum, except where the stricture is within reach of the finger. If there be any exceptions to this rule, they are very rare indeed.

On an Unusual Form of Stricture of the Rectum.

There is a disease of the rectum in which there is generally, but not always, a contraction of the gut, which is not a malignant affection, and which, although frequently confounded with ordinary stricture, ought, as I conceive, to be distinguished from it.

This disease, so far as I know, is not distinctly noticed in books. I have observed it chiefly in women, and especially in those who have borne children. In the great majority of cases it has shown itself sometimes after a difficult labour. The patient complains of pain referred to the rectum, pain in the lower part of the back, a discharge of mucus from the anus, and some difficulty in passing the evacuations. These symptoms at first are trifling, but they gradually increase in severity as the disease advances. The patient then complains of exceeding difficulty in passing the

evacuations, of constant pain—which, however, is greatly aggravated after the fæces have been voided. There is a copious discharge of mucus; sometimes of blood, or of mucus tinged with blood. If you examine the bowel at this period of the disease with the finger, you find the inner surface of the mucous membrane irregular, as if it were lined with a multitude of small flat excrescences; or as if your finger came in contact with a surface covered with warts. There are generally, at the same time, some small flattened excrescences to be observed at the margin of the anus; something like shrunk or collapsed external piles, but smaller. Besides this, it seems, in some instances, as if the mucous membrane in the interstices between the excrescences was here and there in a state of ulceration. The examination with the finger, which is necessary for the ascertaining all these points, gives the patient extreme pain. Generally about an inch and a half, or two inches above the anus, you find a circular contraction, or stricture: but at other times there is no contraction whatever in this situation, while there is a very contracted state of the anus itself. In some instances there is the diseased state of the mucous membrane which I have described, without contraction anywhere; so that the contraction is an accidental, and not a necessary accompaniment of the disease.

When the disease goes on still farther, inflammation takes place in the cellular membrane in the neighbourhood of the gut, and an abscess forms, which bursts externally, near the anus, or on the nates, or in the perineum. Other abscesses form which burst in other situations, one after another, in the same manner as after common stricture of the rectum. Sometimes an abscess forms in front of the rectum and bursts into the vagina, making a communication between the two organs. These abscesses continue to form for an indefinite time, so that ultimately there are a great number of orifices, all of which remain pervious. The abscesses seem, in fact, to have no disposition to heal; but sometimes they get into a quiet or tranquil state, there being but little inflammation, but little discharge of matter; and then, all at once, inflam

is one of great interest as a question of pathology, but ie of great importance, as I shall show by-and-by, in con- n with surgical practice. It is admitted by everyone that e greater number of cases of fistulæ in ano there is an opening to the gut as well as the outer opening; and I am ed that the inner opening always exists, because I scarcely fail to find it, now that I look for it in the proper place and it carefully. I have, in a dead body, examined the parts where læ had existed several times, and in every instance I have d an inner opening to it. This affords a very reasonable ex- ation of the formation of these abscesses; it is almost impos- e to understand, on any other ground, why suppuration should e place in the vicinity of the rectum more than in any other t of the body, and why the cellular membrane there should purate more than cellular membrane elsewhere. Moreover, pus contained in an abscess near the rectum scarcely ever esents the appearance of laudable pus—it is always dirty-coloured d offensive to the smell—sometimes highly offensive, and casionally you find feculent matter in it quite distinct. There no reason why an abscess simply formed in the cellular mem- rane should smell of sulphuretted hydrogen; but there is a ood reason why it should do so if it be connected with the ectum.

This being the case, it is easy to understand why these abscesses do not heal. The least quantity of mucus even from the gut, or of feculent matter, issuing into the cavity of the abscess, is suf- ficient to occasion irritation and prevent it healing, and I have more than once, in the living person, been able to trace the progress of the formation of one of these abscesses. For example, I was sent for to see a lady who complained of some irritation about the rectum, and on examining it I found an ulcer at the posterior part. I ordered her to take Ward's paste—confec. piperis nigri, or cubebs pepper, I forget which. A month afterwards she again sent for me, and I found that there was an abscess. I opened it, and from the outer opening the probe passed into the gut through

Patients with disease of the liver, disease of the lungs, ·rtain states of ill-health, are especially liable to abscess ıla of the rectum. The reason is this: persons thus ıre peculiarly liable to ulcer of the mucous membrane; ıe mucous glandules is attacked, and being very thin it y under the straining that takes place to expel the fæces, s escape through the opening.

·st formation of an abscess about the rectum is not in gene- ded with very urgent symptoms. The patient has a sense g down, a fulness and weight; he thinks that he has got puts his hand by the side of the anus, and finds a little . After a time it increases, the parts become tender; pain when he passes his evacuations; perhaps some diffi- passing them; by-and-by the pain becomes still greater, inflames, the abscess if left to itself bursts, and a quantity r is discharged, which matter is almost invariably offensive, oured, and putrid. The disease sometimes forms so insi- hat the patient is not cognisant of it till the abscess has Twenty years ago a physician in large practice in London ill, languid, listless, and unfit for business; and in the f the day, in consequence of headache, and an incapability on, wanted to go home and lie down for an hour before finish seeing his patients. One afternoon, intending to ne, he had sent away his carriage. He found something , burst into his small clothes, and on his return he found was a putrid abscess—a fistula. He went through an n for it and got well.

these abscesses are forming there is sometimes little or itutional disturbance; but in other instances there is a al of it, and I believe that it depends chiefly on the quality us, and that, again, on the size of the opening. If the be pretty large, and a considerable quantity of feculent scapes, the pus is then of a very putrid quality, and the trid its character the more offensive it is to the smell, and poisonous it is to the patient's system; for as it is more

the most part a sallow, unhealthy aspect, and very freq
labour at the same time under hepatic or some other vi
affection. Here, as in the case of malignant disease in
organs, the symptoms come on insidiously and slowly.
patient has a little uneasiness about the rectum; he thinks
of it. Then he finds some difficulty in passing his evacu
but even this at first scarcely attracts his notice. Then the
culty increases; the uneasiness becomes converted into pai
stomach gets out of order, and the general health begins t
In the advanced stage of the disease, there is for the mos
a great deal of difficulty in passing the evacuations, thoug
varies in different cases; and sometimes there is no difficulty
accordingly as the disease does or does not cause an obstr
of the bowel. By-and-by there is a constant discharge of t
mucus, and constant pain, which is, however, aggravated
each evacuation of the bowels. The pain is especially refer
the lower part of the back, but there is also pain down the t
and in the nates and hips. If, at this period of the diseas
institute an examination of the rectum, you find the n
growth a little way up the bowel, within reach of the
But, as you may suppose à priori, it varies in size, in figure
position, in different cases. Sometimes there is a hard
tumour, occupying only a portion of the circumference
rectum, and usually situated at the back part, with elevated
and, as it were, excavated in the middle, the bowel not
contracted in size, but as capacious as ever. At other tim
morbid growth occupies the entire circumference of the
which takes a winding course through its substance. Then,
introduce your finger into the rectum, you meet with a larg
mass, and with some difficulty discover the orifice of the in
in its centre. Sometimes the diseased structure extends
quite as low as the anus; more frequently it begins abo
inches above it, the intestine below being in a healthy
There is great variety also as to the extent of the disease up
It may be that the whole of it is within reach of the finger, s

than this. But in a great number of cases it does
gher up—sometimes one inch, sometimes two; nay, I
times found a probe pass four or five inches up the pelvis
e cavity beside the rectum. These are cases of some
especting which I shall have to speak to you again

ernal orifice of the abscess is generally in the skin, a
nce from the anus. Sometimes it seems to pass through
nce of the sphincter muscle, and on other occasions it
rnally to it. The abscess may burrow, and may be two
ches away from the anus.
cases there is no external opening at all, and that may
two ways. I saw a gentleman who had an ulcer at the
part of the rectum as broad as a fourpenny-piece. Some
wards I saw him again, and there was then a consider-
harge from the rectum, but no external opening. I
d my finger into the rectum, and found that this broad
made a large cavity, in which matter was lodged, by the
The sinus was so large that the matter had found its way
gut, and therefore did not burrow so as to make an
pening. But in other cases there is no external, while
two internal openings, and they are found in the following
—There is a small opening through which the pus and
e originally infiltrated through the cellular membrane,
the matter, having collected near the gut, bursts into it,
s a free opening in the neighbourhood of the first lesion.
ning the patient you find a discharge of pus from the
the rectum, and on introducing the finger, you find
the opening through which the abscess has burst into
n. This is what is commonly called blind fistula. The
in these cases is seldom quite constant; for the opening
the bursting of the abscess into the rectum is not so
what it sometimes contracts, and there not being a
arge the matter collects, and you may feel it through
near the anus. This is important with regard to the

this rule has its exceptions, and I was lately called to this remarkable case:—The servant of an old lady, who was nearly helpless from age, took it into her head that her mistress passed her fæces from the vagina. She mentioned it to the old lady's usual medical attendant, who questioned the patient, and found she was not aware of it; that she had no pain, and complained of no other symptom of disease, either of the vagina or rectum. By-and-by the servant repeated her assertion that the fæces passed by the vagina, upon which the physician requested that I should be consulted. When I examined the rectum, as far as I could reach it was completely obstructed by a mass of solid substance, manifestly a malignant disease.—It appeared that ulceration had taken place in the rectum above the tumour, and to such an extent that the whole of the fæces were passed by the vagina. This, it is true, was no trifling inconvenience, but it saved the patient from the dreadful pain of the fæces passing over the surface of the diseased rectum.

The morbid growth in these cases is sometimes hard, seeming to partake of the nature of scirrhus; sometimes of a softer texture, and more resembling fungus hæmatodes. Here, too, as in other organs, the two diseases may be blended together in the same morbid growth; and there are many cases in which, although the disease is undoubtedly malignant, you scarcely know, from examining its structure, under what name it should be described.

Treatment.—All that is worthy of being said respecting the treatment of these unfortunate cases, may be comprised in a few words.

It has been proposed that the disease should be extirpated by an operation; and there is no doubt that if it were merely your object to excise the parts in which the morbid growth was completely established, so as to be distinctly perceptible to the finger, such an operation would in some instances be sufficiently practicable. But let me ask, what security would you have that the seeds of the disease did not exist in the mucous glands, or other textures above the tumour, and that your operation would soon prove of no avail?

More than this: if you consider in what manner a malignant disease spreads, when once established in a particular organ, and the general ill success which attends the operation for its removal, even when performed under the most favourable circumstances, and where the whole organ can be taken away, can you reasonably expect that it will succeed under such circumstances as these, where you cannot take away the whole organ, and where it must be always doubtful whether you have been able to make a complete and satisfactory examination of the diseased part previously? Then consider, if much of the rectum were to be removed, what a frightful operation it would be, and in how miserable a plight the patient would be left afterwards? If ever such an operation be justifiable, it must be surely only under some very peculiar circumstances where the disease was very low down in the gut, and quite in its earliest stage. In ordinary cases it ought to be entirely out of the question, as one which no conscientious surgeon can advise his patient to submit to.

Opiate injections into the rectum, and injections of linseed oil, either in its pure state or combined with lime-water, are sometimes useful in allaying the irritation of the rectum; and alkalies may be given internally, either with balsam of copaiva, or otherwise combined. In the advanced stage of the disease you must give the patient opium; you cannot help doing so; and, indeed, he must be kept very much under its influence to make life at all supportable. Yet there are great objections to the use of opium here, as in most other cases. You seldom meet with a patient on whom opium confers a benefit, without a corresponding evil. Opium, it is true, relieves the pain for a time, but it makes the bowels costive, so that it is very difficult to manage them. It stops the secretion of the liver, disorders the stomach, and injures the general health, making the patient at the same time nervous and irritable. Therefore I advise you not to give opium till you are driven to it. In the advanced stage of the disease all that can be said is, that you must have recourse to it as the lesser of two great evils.

Recto-Vaginal Communication.

I have mentioned, in treating of the different diseases of the rectum, that a communication sometimes forms between the rectum and vagina. This is sometimes subsequent upon a difficult labour, just as a communication is sometimes formed between the vagina and urethra, or bladder, from the same cause.

The communication between the vagina and rectum used to be one of the opprobriums of our art, the patient's life being rendered miserable, with little or no hopes of recovery. Of late, however, a simple and scientific method of relieving the patient in these cases has been contrived by Mr. Copeland, who has succeeded in curing several patients labouring under it, simply by dividing the sphincter muscle of the anus. The sphincter muscle being divided, the fæces are not retained in the rectum; they run out as fast as they enter it, so that the bowel is kept empty and contracted, and altogether in a passive state, and the communication between the rectum and vagina is thus enabled to cicatrise. I do not know whether this would answer if the communication were of large size, but I am told that it has answered very well in the cases in which Mr. Copeland has hitherto employed it. I cannot but regard the application of this operation to these cases as one of the principal improvements of modern surgery; and the simplicity of the practice forms one of its principal recommendations. Of course it can be recommended in those cases only in which, independently of the opening into the vagina, the parts are in a healthy state.

ON DISEASES OF THE MAXILLARY ANTRUM.

I SHALL draw your attention to-day to a case in one of the upper wards, that of Samuel Tovey, admitted on the 1st of this month.

Eight years ago he fell down as he was walking on the slippery pavement, by which his nose, and the whole left side of his face, were bruised. Ever since he has had pain of these parts. The left side of the face became swollen; the pain increased, and matter was discharged through the nostril. Matter also occasionally made its way through one of the alveoli of the superior maxillary bone; and he continued in this state at the time of his admission into the hospital.

On the 7th November I made an incision which separated the upper lip, or rather the cheek, from the jaw; and a probe having been introduced, it appeared to me that the extremity of it came in contact with a portion of dead bone, in the situation of the antrum maxillare. I then introduced a pair of strong sharp-pointed scissors, using them in their closed state as a chisel, to break down the thin plate of bone above the grinding teeth, so as to expose the cavity of the antrum, in which I could then feel small fragments of dead bone, some of which were extracted. On the following day some other small portions of dead bone passed through the nose. There were now swelling and pain on the left side of the face, with a good deal of headache, and a frequent pulse. The patient was ordered to be purged. On the 9th, two days after the operation, he had shivering, and was delirious in the night. On the 10th, however, he was much improved, able to get up, and to-day, the report is, that the pulse is slower, easily compressed; the tongue clean; the bowels open.

Not knowing what to do with the c
Cline, and observed to him that if I
the patient might die from loss of
quite right, but more than that I d
would leave it alone.' There was
fæces could not escape so easily n
above. I adopted his advice, and t
any trouble. I have since seen ot
Where there has been a large sinus
have laid open the parts between the
done nothing more—and the patient
sinus, and a very large cavity, heal u
fortiori, if there be a small sinus, an
heal up too.

In the next lecture I shall call at
more complicated cases.

I concluded the last lecture by spea
performing the operation for fistula in
the simplest kind. But I now come
done in a case of fistula attended with

The external orifice of the fistula is
distance from the verge of the anus, pe
and in some cases it is as far off even a
if you please, perform the operation i
may pass the probe in at the outer ori

not much, of tumefaction of that side of the face; tenderness in the situation of the antrum everywhere; the very severe and constant pain which the patient endured being aggravated by pressure. In addition to these local symptoms, there was a good deal of febrile excitement of the general system. The disease had existed for two or three weeks, gradually increasing up to the time of my being consulted. Believing this, then, to be a case of inflammation of the maxillary antrum, and thinking it not improbable, from the time that the inflammation had lasted, that suppuration might have already taken place in the cavity, I made a perforation into it above the second molaris. (I shall speak of the manner of making the perforation presently.) No fluid, however, of any kind escaped through the aperture. I then recommended what I had found successful in some other cases, that the patient should take pills, composed of two grains of calomel and half a grain of extract of opium, three times daily. In about three days the gums were a little sore, the pain began to abate, and at the end of three or four days more the symptoms had entirely subsided. I believe that, when you are called to a case of this kind, you will seldom find the plan of treatment which I have here described to fail.

But inflammation of the membrane lining the antrum may end in suppuration, so that there may be a collection of pus in the cavity of the antrum, and I conclude that such acute inflammation as existed in the case just described might terminate in this manner, if not artificially arrested.

Inflammation of the Antrum dependent on Local Causes.

However, where matter forms in the cavity of the antrum, I certainly believe that in most instances, there is some local mischief first, and that suppuration of the membrane lining the antrum supervenes as the consequence. The cause in which the disease originates is generally a diseased tooth. The patient har a bad tooth in the upper jaw, one of the molares, or perhaps o

of the bicuspides (or it may even originate in the cuspidatus when the fang comes near the antrum). The tooth is carious, and by-and-by the patient has the toothache. He does not like either to lose the tooth or to submit to the pain of having it drawn, and so he submits to the toothache. The inflammation on which the toothache depends then terminates, as it always does, in the death of the pulp of the tooth. Then the whole tooth dies, and it is now like a portion of dead bone, or any other foreign substance, stuck in the jaw. Such a dead tooth may remain in the jaw for many successive years, exciting no irritation, and leading to no mischief. In other cases, however, the tooth begins, even at an early period, to operate as a cause of irritation, and it almost invariably does so ultimately. Then inflammation takes place at the bottom of the alveolus, and is followed by suppuration. The matter cannot readily escape; perhaps it makes its way downwards between the tooth and the alveolus, and presents itself in the gum, forming a kind of gum-boil. At other times the tooth is so firmly wedged in the alveolus, that the abscess cannot find its way in this direction. Under these circumstances it collects at the bottom of the alveolus, and occasions the patient extraordinary pain and suffering. The matter lying upon the bone destroys the periosteum lining the alveolus; the bone itself becomes absorbed; and the inflammation extends to the mucous membrane lining the antrum. Sometimes a small fragment of bone in the neighbourhood loses its vitality, and there is then a piece of dead bone separating the alveolus from the antrum, and producing suppuration in this cavity. Thus there is an abscess in the antrum, with a splinter of dead bone above, and a dead tooth also at its inferior part. While this process is going on, the patient suffers at first an extraordinary degree of pain from the matter pent up at the bottom of the alveolus; afterwards, when the antrum becomes affected, he complains of a dull constant pain in the cheek, with the addition of certain lancinating pains coming on as an aggravation of the pain which is constantly endured. There is then an effusion into the soft substance under

the skin, rendering the face on that side œdematous, with a slight degree of red discoloration on the surface; and the patient may remain in this condition for a great length of time. In some cases matter is discharged by the nostril, but not always, for the inflammation of the antrum may have the effect of stopping up the orifice where it communicates with the nostril, between the two turbinated bones. When the opening of the antrum remains pervious, the patient will, of course, experience occasional relief from the matter passing into the nostril. I have said that sometimes there is, and sometimes there is not, a fragment of dead bone; but this, as far as I know, makes no difference in the symptoms, although when there is dead bone, the recovery of the patient may be expected to be more difficult and tedious.

Treatment.—In these cases you may relieve the symptoms for a time by applying leeches to the cheek, by the exhibition of purgatives, and by adopting what is called an antiphlogistic treatment of other kinds. But it is evident that such antiphlogistic treatment can only relieve the symptoms—it cannot strike at the root of the disease.

The first thing to be done is to extract the dead tooth; and it may be that this is all that is wanted. If, when the tooth is drawn there is a free communication between the alveolus and the cavity of the antrum, the matter is discharged through the opening, and the patient is immediately relieved. In other cases, however, when the tooth is drawn, either the abscess of the antrum does not discharge itself at all through the aperture, or it does so only in an imperfect manner. The plate of bone between the alveolus and the antrum is generally very thin, and you may easily introduce a sharp-pointed instrument into the bottom of the alveolus after the tooth is extracted, and break it down so as to establish the communication which is wanted. This must always be done whenever the extraction of the tooth does not leave any or a sufficient opening for the discharge of the matter from the cavity above.

The instrument with which you make the opening should be

formed like a common hydrocele trocar, but a little larger (of course without a canula), and it should not be made of the best steel; for I once used a common trocar made of steel, in an operation of this kind, and it broke while I was performing it. In this case I extracted the broken portion very easily, but you can conceive that such an accident might occur, and you might experience great difficulty in extracting the point of the instrument. The steel, then, ought not to be very finely tempered, but such as would bend a little instead of breaking. There is no occasion for its being otherwise; for you do not want a very sharp-cutting instrument. It is sufficient if it be strong, and will not easily break.

When the bottom of the alveolus is broken down, the matter will readily escape from the antrum, and you may introduce a probe and explore its cavity so as to ascertain whether there be in it any dead bone or not. Sometimes there is a piece of dead bone at the bottom of the alveolus, and then you have only to wait patiently till an opportunity occurs for its removal. At other times you will feel the dead bone after the probe has entered the antrum, and the opening already made may not be sufficient for its extraction. Under these last-mentioned circumstances, the opening must either be enlarged or another made in a different place. When a free opening has been formed into the antrum, you should allow the patient at first to remain quiet, with a piece of bougie or gum catheter retained in it, in order to prevent its closing. This should be taken out two or three times daily, to allow the escape of the matter. After two or three days, being provided with a syringe having a slightly curved pipe, small enough to enter the opening, you should begin to wash out the cavity of the antrum by injecting some tepid water into it once or twice daily. The water injected will generally pass into the nostril, showing that the natural aperture of the antrum remains pervious; and if it be, then you are able to wash it out more readily and completely than you could do otherwise. If you find that the injected water does not pass out of the nose, you will

know that the natural opening between the two turbinated bones is blocked up, and you will then have a little more trouble in washing the cavity of the antrum thoroughly out.

Let us suppose another case—viz.: that a dead tooth has been allowed to remain until it has produced suppuration of the antrum; that it has then been extracted; that nothing further has been done; and that the patient has been left either with no opening at the bottom of the alveolus or one that is insufficient. Under these circumstances, the bottom of the alveolus becomes filled up with new bone, the edges at the inferior part are absorbed, and the alveolar cavity no longer exists. It is absolutely necessary to the patient's recovery that an opening should be made into the antrum: but where, in such a case as this, would you make it? In the situation of the alveolus? This is an awkward place for the purpose, on account of the thickness of the bone which you have to penetrate. It may be a good situation when the tooth has just been drawn, but it is a very bad one when the jaw has become consolidated afterwards. The best mode of making the opening is this: raise up the cheek so as to expose the membrane covering the gum on the side of the face, and with a scalpel make a transverse incision down to the bone. Always make this incision through the membrane before you begin to perforate the bone. In one case I did otherwise, thinking the division of the membrane, as a separate part of the operation, was unnecessary; but the consequence was, that the blood escaped into the cellular membrane beneath, and there was an immense ecchymosis, making the rest of the operation very difficult. Always, then, divide the membrane first, where it covers the jaw just above the alveolar processes of the grinding teeth, and then perforate the thin plate of bone as nearly as possible to what you suppose to have been the original seat of the disease.

What instrument is to be employed in making the perforation —a trephine? That is quite unnecessary. Nothing is better than a pair of sharp-pointed strong scissors; apply them to the bone in their closed state, using them as a chisel, and they will

you may hasten their cicatrisation, and
by touching them lightly over with th
very seldom necessary, except in comp
fistula for any length of time; a few d
quite sufficient. As soon as the cut ed
dressing is hardly necessary, and it w
patient a good deal of trouble merely t
sore lightly every other day with the nit
edges are fairly skinned over, the rest wi
the dressing than with it. If you cram
occasion the patient a great deal of pain
times, from too much lint being cramme
freely escape; it burrows in the cellular
fresh sinus.

There are some cases in which abscess
which may be confounded with that part
described, and I shall explain them in
the distinction between them. An absce
external pile. The patient has an exter
suppurates, and on going to him you fin
point of bursting. You open it and let
ful or more of matter, but on passing in
by the side of the gut. This is a very tro
it is very painful, the patient can hardly
closet, and he has pain in passing the last

not come away easily, of course you will understand that suppuration must continue; but here it continued although there was no dead bone—at least none was ever discovered.

Collection of Transparent Fluid in the Antrum.

The next disease of the antrum of which I shall speak, is one of more rare occurrence; in fact, I have seen only two cases, and I can find only one or two instances of the kind on record. A lady consulted me with a large projection of one cheek. It looked as though she had a large plum in her mouth. I lifted up the cheek, and found a projection in the situation of the antrum of one side, elevating the membrane from the gum, and the flesh of the cheek also. This projection was as large as a pigeon's egg. The surface, where it was covered by the membrane of the cheek, gave way a little under the pressure of the finger. There was no distinct fluctuation, but a kind of crackling sensation communicated to the fingers, as if you pressed upon very thin horn, or dry parchment. This being the first case of the kind that I had met with, I did not know what it would turn out to be, and I thought it likely that there was some solid tumour in the antrum. I took a curved scalpel, not bent in the direction of the cutting-edge like a bistoury, but bent laterally, with a strong sharp point (which I had found very useful on some other occasions), and introduced the point into what seemed the thin bony parietes or boundary of the tumour: having previously dissected the membrane of the cheek from the jaw. Immediately there escaped a large quantity of transparent fluid, like very thin mucus; something like what we find in cases of ranula. I then introduced a probe into the cavity of the antrum, and found that it might be passed in any direction. There was neither tumour nor dead bone, and the cavity seemed to be in a natural state, except that it was enormously dilated. I next enlarged the opening, cutting out a circular portion of thin bony shell formed by the expanded parietes of the antrum. After the operation the tumour subsided, and in

fistula is usually healed by the time the stricture is dilated; be not completely healed by that time, you have only to keep stricture dilated for a considerable period by the introduction an instrument every day, or every other day, and the fistula perineo will at last heal. If it be a large opening it will some months to heal, but still it heals spontaneously. There only one kind of case in which it is necessary to lay open a fistula in perineo, and that is, where there is a sinus in the perineum which the urine escapes, but which is so situated that neither urine nor the matter secreted in the sinus can find egress there be a fistula in perineo under these circumstances, it require to be opened.

There are some fistulous sinuses that exist in the groin in nection with disease in the glands of the groin. Surgeons fer supposed that these required to be laid open like a fistula i They do require to be opened where matter lodges in the cannot escape, or, at any rate, a counter-opening will be nec for there is no disposition to heal unless the matter escapes as it is secreted; but the mere laying open of the fistula cause it to heal, it will only prevent it extending. What the fistula in the groin from healing? The diseased glan bottom of it. If you wish the fistula to heal, you must des diseased gland, or bring it into a healthy condition. Sor it may be necessary to dissect out the gland or to destroy powerful escharotic; but in the greater number of cases attend to the general health, the diseased gland recover and so soon, and no sooner, will the sinus in the groin hea

carcinoma. They are attached to the mucous membrane, and soon grow so as to fill up the cavity. I suppose that at first they produce but little pain, and that the patient has scarcely any symptoms of disease; at any rate there are no symptoms by the description of which the surgeon would be able to recognise the existence of disease in its very early stage. But it is otherwise as the disease advances. The tumour, growing larger, presses upon the inner surface of the antrum, and causes its bony parietes to become dilated. By-and-by it makes a projection in the cheek, just like that which I described in the last case, where there was a collection of mucus in the antrum. After a time there is another projection in the situation of the bony palate—that is, the tumour presses upon the floor of the antrum, as well as at the sides. Then another projection occurs at the inferior part of the orbit; and there is another still blocking up the nostril; in fact the antrum becomes distended everywhere, causing an enlargement of the cheek, bringing the bony palate to a level with the grinding teeth below, and diminishing the cavities of the orbit and nostril. The bony substance of the antrum becomes absorbed under the pressure of the tumour; the base of the alveoli is destroyed; the teeth are rendered loose, so that they merely hang in the jaw by flesh, and you can extract them with a pair of forceps, or they drop out of themselves. The tumour goes on increasing until the antrum will admit of no further distension; ulceration takes place, and the malignant growth projects through the ulcerated opening. Generally it projects, in the first instance, under the cheek. A large ulcer is formed there, and the tumour appears through it. It then makes its way by ulceration into the mouth and orbit; sometimes it pushes the eye upwards, and at other times forwards, so that it is quite out of its natural place; and in either case it occasions blindness. As the disease makes still further progess, it forms a large tumour in the mouth, compressing the tongue, and preventing mastication.

The malignant growth having made its way externally being freed from the pressure of the neighbouring parts, i

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effusion of lymph into the adjacent
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surface. The outer part of the tumour was of soft consistence, which I broke down, with my fingers, and I then turned the tumour out, so that the antrum appeared to be perfectly empty. But this was not done without an enormous and indeed frightful hæmorrhage. I introduced a quantity of what we call blue lint—that is, lint dipped in a solution of copper, and then dried, and filled the cavity of the antrum with it, hoping that this might make the base of the tumour to slough off. Sloughs did come away, but, nevertheless, there was no destruction of the disease. I applied caustic afterwards, and the actual cautery very extensively, but without at all checking the growth of the tumour, which went on in spite of all the plans I adopted with a view to restrain it: in short, it grew faster than I could destroy it, the cheek ulcerated, and the patient died in the miserable way that I have just described.

It has been my endeavour in the preceding lectures to give you some information, which, of however little value it may be to those experienced in surgery, may, I hope, be of use to you who are younger men. But I have had another object in view in the construction of these lectures. They have been entirely practical, and, with hardly any exceptions, have been drawn from my own observation and experience. I wished to set you an example of what your own mode of study ought to be. In these times there is a great quantity of medical literature, such as it is. There are books on specific disease, dictionaries, cyclopædias, compendiums, and manuals, of all kinds; and nothing is more easy than for a person with a tolerable memory to look into books and learn by heart the prevalent doctrines and opinions of the day, and then to be able to discourse on those subjects as if he really understood something of them, and to go and pass what is called a good examination; that is, to answer every question that is put to him. You may be successful in qualifying yourselves in this manner, but, depend upon it, it will be of no avail to you in future life. A man who gets up this sort of knowledge from books is good for

nothing. He goes to the bedside of a patient, but he nothing either of the disease or of its treatment, and he is, fore, in doubt about it. He has not that confidence in which enables him to take every responsibility, and which practitioners must do in difficult cases. You must, in orde qualified for the situations which you are hereafter to fill gain your knowledge, not from books, but from your own gations. I do not say that you are not to look into books read them, but it should only be done in conjunction with p If you have a particular case before you, refer to a goo and that will enable you to examine it far better than you otherwise do; but the principal thing is to observe for you This remark applies to anatomy, to surgery, and to physic. may get up anatomy by being examined by your teach learning books by heart, and appear a very good anatomist man who examines you; but that knowledge will be of no whatever in practice. No anatomical knowledge is of a excepting that which you obtain by seeing the parts lecture-room, and then examining them for yourselves, a your own hands in the dissecting-room. I can assure yo there is no other anatomical knowledge worth having, a man who has qualified himself merely to pass an anatomi amination in the way to which I have referred, will find t has no chance whatever when he comes into competition wi who has made himself an anatomist in the proper way. S with respect to hospital practice; you must look at the cas study them for yourselves. Examine the cases in the m and refer to books in the evening, otherwise you will h useful knowledge. Consider the observations which dro the medical officers, compare what they say with the person, and take notes with your own hands. No perso learn either medicine or surgery who does not take notes, is the only way to obtain that knowledge which is necess practice.

I take the liberty of making these observations, not tha

particularly need them, but they may be of use to younger persons in the profession. The way which I have pointed out is the only one in which you will be enabled to succeed in your profession, and to practise it with comfort to yourselves and advantage to the public. In fact, I think that very few will get into practice at all who do not pursue the study of the profession in the practical manner which I have suggested. I offer these remarks with an entire feeling of friendship, and with the most earnest wish that you may be successful in your profession and do honour to this school.*

* The introduction of anæsthetics into practice was subsequent to the delivery of these lectures.

Sir Benjamin Brodie was in the habit of having his patients placed under the influence of chloroform in all serious operations, and in those of a very painful nature. But he was averse to its being indiscriminately administered on trifling cases.

When he himself underwent the operation of Iridectomy, the operation was performed whilst he was under the influence of chloroform. But when the subsequent operations—the extraction of a cataract and the formation of an artificial pupil—were performed, chloroform was not used.—C. H.

THE following notes are from MSS. taken dow
Dr. Reginald Thompson from Sir Benjamin Brodie's
tion, during the winter of 1861 and 1862; at which
Dr. Thompson read over to him several of his
volumes of notes and cases.

INJURIES OF THE BRAIN.

IN the year 1828, I communicated to the Royal Medico-Chiru
Society some account of what may be considered as the
immediate results of injury of the brain. I stated that it w
intention, in a future communication, to extend my observ
to the more remote consequences of those injuries arising
or connected with inflammation.

When, however, I came to consider the subject in its det
found that these results were so various and liable to such
plications, that it was difficult to reduce them to order s
give any systematic account of them, and hence it is that th
which I had proposed to myself had never been executed
however, disregarding the complications to which the conseq
of these accidents are liable, we take a more general sur
the whole, we shall find that there are certain differences
well defined; and I hope that by limiting myself to the co
plation of those cases, in which the complications to which I
alluded exist not at all, or only to a small extent, I may be
in part at least, to realise the object which I had propo
myself formerly.

In the case of concussion of the brain unattended wit
other kind of injury, the result most to be apprehended is t

inflammation, not of one part, but of the whole of the injured organ.

It may be that the symptoms of concussion in a great degree subside, and that those of inflammation are not distinctly developed until after some interval of time, perhaps of one or two days.

But in the majority of cases it is otherwise. The symptoms which we attribute to concussion, gradually alter to those of inflammation, so that it is difficult to say where the symptoms of the one order end, and of the other begin.

Inflammation of the brain under these circumstances is marked by delirium, sometimes of a low kind, and at other times such as to render the patient violent and unmanageable. There is pain in the head, a hot skin, a flushed countenance, and an increased frequency of the pulse. In this last respect, however, there are some exceptions to the general rule, and the pulse in the first instance, instead of being more frequent than natural, is actually considerably reduced below the ordinary standard.

I remember in one instance, I was consulted respecting a gentleman who had otherwise well-marked symptoms of inflammation, following concussion of the brain, in whom the pulse did not exceed 40 or 45 in the minute. On his being bled it rose, if my recollection be accurate, for I have no notes of the case, to upwards of 70; the blood that was drawn exhibiting well-marked signs of inflammation. If the inflammation continues it may end in the formation of matter on the surface of the arachnoid, with effusion of serum into the ventricles, and in the subarachnoid space, or it may be that the patient may be worn out by nervous excitement before there is time for any such effusion to have taken place.

For the most part, however, in the case of concussion of the brain complicated with other injury, and under judicious treatment, there is no such unfavourable result.

In the course of a few days the more urgent symptoms have subsided, the brain may remain in a very susceptible state for some time, perhaps for many months afterwards, but eventually the recovery is complete.

The treatment of such cases may be comprised in a few v perfect repose, food taken in its most simple and for the part in a liquid form, purgatives administered from time t according to circumstances, and the abstraction of blood from the arm or by cupping. On this last point, however, some further observations to offer. It is in medicine and s as in politics—there is a certain number of persons who d extreme opinions. Formerly there were those who in pu what is commonly called the antiphlogistic treatment, carri system of blood-letting to a most unreasonable extent. member a very eminent practitioner and a popular lecturer department of medical science, who often was in the h speaking of taking away blood not by ounces but by pound present there are those who go into the opposite extreme to the verge of almost renouncing blood-letting altogether.

Now I do not hesitate to say that to act on this princ the cases of which I am now speaking, would be a most dan proceeding, and that there are not a few cases in which re abstraction of blood is necessary for the preservation patient's life. At the same time I do not say that there exceptions to the rule, and that in such a case as that of drinker it may not be necessary to have recourse to an o method of treatment.

Neither do I deny that there are other cases in which me remedies may be administered with advantage, keeping t flammation in subjection and diminishing, but not supers the necessity of blood-letting.

There is another order of cases in which the early sym are apparently of trifling importance, but in which the ul danger is great. These are the cases which have be graphically described by Mr. Pott in his treatise on inju the head. The patient has received a severe blow or con of the head, he may have been stunned, but may have rec from this first effect of the injury.

He is probably in a state which excites but little anxiety

ıessage; but by-and-by a messenger did arrive, saying that Tooke was much the same, or a little better. It turned I have been informed, that the piles sloughed off, and that his time he never had any bad symptom. In fact, he was, ave been rightly informed, cured of a disease which had he misery of his life for many years preceding, and he lived me years afterwards.

atment.—In considering the treatment of piles, we will first se that you are consulted when the disease is in its earliest . The patient complains of a sense of heat and itching about anus, and perhaps there is already a slight protrusion of the . You may cure him, in general, by a very simple process. p the bowels gently open; take care that he is not costive on one hand or violently purged on the other. The best aperient this case is the following:—One ounce and a half of confectio næ, half an ounce of sulphur precipitatum, and then mel rosæ, much as is necessary to make an electuary, and let the patient e about a tea-spoonful, or what he finds necessary, of this, ery evening. This is all that is wanted in many cases; but at same time he should avoid drinking much wine; and if he be sedentary habits, he should, if possible, alter them, and take ercise. If this should not relieve him, in addition to what I ave just mentioned, let him inject half a pint of cold water, fresh om the pump, as a lavement, every morning after breakfast, and eep it up as long as he can. This will give him immediate omfort, but it requires to be persevered in for many months; and perseverance in this plan of treatment will sometimes make a cure even of very bad cases of piles. You may, if you please, add something to make the water more astringent, as alum, the tinctura ferri muriatis, or the patient may use cold lime-water. A friend of mine, a practitioner at this end of the town, informed me that for many years he had used cold lime-water in cases of piles, with the best result; and I have employed it in several instances lately, in which I think it has been serviceable.

There is a medicine that is very often useful in those cases

result. The failure of the operation was always sufficien plained by the fact that on examination after death, it was that suppuration had been established under the dura m well as over it, and generally to a greater extent in the than in the latter situation.

That there may be some rare cases in which the mischi be limited to the space between the bone and dura mater, which the timely application of the trephine may save the p life, is certainly not impossible, and that some such cas have occurred in the very extensive practice which Mr. P in one of the largest hospitals in London cannot, I suppo be doubted. But I am convinced that they must be of ve occurrence. It may be right to give the patient that ver chance of a cure which the perforation of the bone may him. There can be no objection to the operation, inasm it is not painful and cannot make things worse than the before. Still the great object of surgical treatment sho not so much to give exit to a collection of pus already estal but to prevent suppuration taking place. The case is n admitting of what is called active treatment. Some m abstraction of blood in the beginning may be proper, but t no reason to believe that the repetition of blood-letting useful, while it is very probable that it may be actually inj

The required treatment is, indeed, very simple, yet it very efficient. The patient after any severe contusion of th where such results as those which I have described may be hended, should give up his usual occupations, avoiding citement of body and mind, living on a very plain diet, and care that the bowels are properly regulated.

The longer I live the more I am satisfied of the great ad to be derived in cases of disease from keeping the disease in a state of complete repose, and the rule applies to inj the brain as much as it does to diseases of the joints. I doubt that many persons have died from the consequenc blow on the head, whose lives would have been preserved

Ie had a patient labouring under piles, and he recom-
ıim to take Ward's paste. The patient, little thinking
ɔthing put into the stomach was to cure disease in the
rammed as much as he could bear of it up the rectum.
· it gave him a great deal of inconvenience, but, as Sir
Iome reported, it cured him; and Sir Everard said that
ı he had used it as a local application in some other
ı manifest advantage.

ioned that a patient with stricture of the rectum had
ly taken a large quantity of Ward's paste, and that the
ɔf it were found distending the colon after death. I
ır attention to this circumstance now, because it will
mpress upon your minds the necessity of always giving
ıt some gentle aperient occasionally at the time that the
ıste is being taken. This is not the only medicine of
·iption which may be used in cases of piles. Cubebs
scruple three times a day, may be given with advantage;
s, I suppose, in the same manner as Ward's paste. In
s of this disease, where there is a great deal of irritation,
ıt will derive benefit from copaiva combined with caustic
ılf a drachm of balsam of copaiva, with fifteen drops of
tassæ, may be rubbed down with two or three drachms
ıge and cinnamon water, and taken three times a day.
ers a very good purpose, soothing the piles, and keeping
s gently open at the same time.

are called to a patient when the external piles are in-
ıd swollen, your best way is to make him remain quiet
rizontal posture, which takes the weight of the column
ɔff the piles. You may, if you please, apply leeches in
ıbourhood, but not on the piles themselves, for the leech
cause them to become inflamed, and to fester; or, if the
much distended, you may puncture them with a needle.
ure, on the whole, relieves the patient more than the
ɔn of leeches; and there are these advantages in it, that
ɔure of the needle does not cause the piles to fester, and

These are what in the modern nomenclature of patholog be described as cases of pyæmia. The received hypothesis that the secondary diseases are the results of the entrance through the veins into the circulation.

I shall take this opportunity of observing that I am myse much inclined to doubt the correctness of this hypothesis. cases to which I have just adverted, there can have b absorption of pus from the dura mater, as none was formed surface. In one instance there being peritoneal inflamn there was an effusion, not of pus, but of lymph.

I was consulted concerning a little boy who had a subcut vascular nævus, situated on one side of the neck below the of the lower jaw. As the nævus appeared to be increas size, it seemed desirable that something should be done removal, and accordingly I passed three setons, each comp five threads of silk, transversely through it, the ends of the being left projecting, as I thought, sufficiently beyond the tures. The result was, however, that in consequence of th of the parts having become more swollen from inflammatio I had expected, when I visited the patient on the followi the setons had altogether disappeared, the ends being com drawn in by the integuments. On the following day the considerable disturbance of the general system, the patie a rigor, and the knee of the opposite side was swollen. disturbance of the system continued, and the swelling of th increased. Suppuration took place in the substance of the an abscess presented itself, which I opened, giving exit to siderable quantity of matter, the setons being discharged The disturbance of the general system immediately subsid the swelling of the knee, which evidently depended on a col of fluid, disappeared. We cannot suppose that in this cas was an abscess in the knee, or that the fluid in the joint w other than the usual serous effusion consequent on inflam of the synovial membrane, and we are therefore justified conclusion that the secondary inflammation did not depend absorption of pus.

removed by ligature; if they are removed at all, it
ie by excision. On the other hand, internal piles which
ed by the mucous membranes ought, for the most part,
noved by ligature. In short, the ligature is applicable
in cases of internal piles, and excision to those which are
The grounds of this distinction are as follow:—The
n of a ligature to external piles gives the patient ex-
y pain at the time, and afterwards excites much inflam-
velling, and disturbance of the general system; whereas,
removed by excision, these ill consequences are avoided.
excision of external piles, there can be no danger of
ge, because the parts are entirely within your reach, so
bleeding vessels can be easily secured; and though some
mmation may supervene on the operation, yet it is not
to be of any real consequence. If, however, you
rge internal piles by excision, there may be copious and
gerous hæmorrhage, since the parts which bleed are out
above the sphincter muscle, where you cannot expose
rface, so as to be enabled to take up the bleeding vessel.
her hand, the application of a ligature to internal piles
l causes but little pain, and only a slight degree of in-
n follows, for the mucous membrane has nothing like
bility of the skin, and does not resent an injury in the
nner. With respect to internal piles, then, there is no
to the use of the ligature, while there is the greatest
to their simple excision. This is the doctrine which I
nt by Sir Everard Home in this hospital when I was
. But I met with a copy of Mr. Cline's Lectures on
n which he stated that he removed internal piles by
and this observation was added—'a timid surgeon
them by ligature.' Knowing Mr. Cline to be a very
practitioner, I thought that in what he recommended
d be no kind of danger, and for some time, therefore, I
o follow his suggestion. In the first one or two cases I
inconvenience to arise from my altered practice; but

will I say that there are no cases of secondary abscess upon the absorption of pus into the blood.

But it certainly appears to me that there are many cannot be so well explained as by attributing them to the the nervous system in producing local inflammation. tion with this inquiry the following case is of much in

A lady, 35 years of age, suffered from a painful contraction of the sphincter ani muscle, attended w ulceration of the bowel at the posterior part oppo coccygis. She suffered exceeding pain from the expu fæces, continuing for a long time afterwards. The hardened fæces sometimes left her in the greatest di whole week. The patient was of a very nervous temper subject to hysteria. She had come to London express relief, if possible, from these sufferings.

Accordingly, I divided the sphincter ani muscle, tak include the ulcer in the incision. The operation instantaneously performed, and there was no hæmo immediately afterwards the patient fell into a state of be regarded as hysterical syncope, the symptoms resembling those which might have followed the loss quantity of blood. This was followed by other sy nervous derangement, which it is unnecessary to descri

Afterwards she complained of pain in the upper abdomen, sometimes of pain in the shoulder, and pain in the head. Dr. Southey attended her with unnecessary to describe the treatment employed, excep the state she was in we could not venture to abstract the arm, nor otherwise than by the application of lee abdomen. Death took place on the seventh day after th was performed.

On examination after death there were no signs of a mation whatever nor of any other mischief in the rec immediate vicinity of the wound. The pleura on eithe marks of inflammation and contained a very considerab of very turbid serum with flakes of lymph floating in it.

The peritoneum bore marks of inflammation, and in some parts there was an effusion of serum with lymph on its surface.

DISEASES OF JOINTS.

In my treatise on 'Disease of the Joints,' I have endeavoured to define the various affections to which these organs are liable, to explain the symptoms and other circumstances by which the several diseases may be distinguished in the living person, and the treatment which may be employed for their relief.

A surgeon of much experience will, as a general rule, be able to form a pretty accurate diagnosis of these diseases, but even to him, when a case is presented to him of long standing, of the early progress of which he may probably obtain but an imperfect history, an exact diagnosis will be difficult, and in some cases impossible. Of course to a younger and less experienced practitioner the difficulty will be greater. It is not to be supposed, however, that in these, or indeed in any other cases, an exact diagnosis is always necessary as the foundation of a successful treatment.

A few general rules may be laid down which will of themselves be a sufficient guide for the surgeon in a great majority of instances. This observation, indeed, applies to the great majority of other diseases as well as those of the joints, but the observations which I have now to offer are intended to apply especially to the latter.

There are a few cases in which there is an increased secretion of synovia producing a chronic swelling of a joint without even a vestige of inflammation in the secreting membrane or elsewhere, and in which friction of the joint carefully conducted may be useful in causing the absorption of the fluid which it contains. In a joint which has been the seat of inflammation, but which remains more or less stiff after all inflammation has subsided, friction and motion of the joint, or what is called shampooing, may be useful in promoting the absorption of the effused lymph on

which the stiffness of the joint depends; but with these exc
it may be laid down as a general rule that the most essent
of the treatment of a diseased joint, whatever the disease
is, that it should be kept in a state of complete and absol

In cases of acute inflammation, attended, as it always
more or less tenderness on pressure, the use of mechan
pliances for this purpose cannot be had recourse to, and
under these circumstances such mechanical appliances
together unnecessary, the pain produced by every att
motion sufficiently answering the intended purpose, but i
chronic forms of disease, it is easy to employ the me
appliances to which I have just referred. It is plain th
may be of various kinds. I have found in the majority
the object has been best attained by the use of splints mad
cowhide leather, softened in warm water, moulded to the
the part and allowed to dry on.

This may be afterwards lined with some soft leather, an
secured by a bandage, completely limits the motion of t
and so far from causing any inconvenience, affords the pa
greatest comfort.

There may be one or two of these splints, according to
stances, thus the hip-joint and the wrist-joint require ea
a single splint, while two are necessary for the knee or an
the cases of disease of the shoulder the purpose is general
ciently answered by a bandage securing the arm to the si

Whatever may be the apparatus employed, it is essentia
should be one that can be easily moved, as otherwise great
and even very great mischief may be the consequence if a
and sudden attack of inflammation and swelling should ha
supervene.

I have been led to make this observation, having me
case in which this happened after the application of a
bandage.

The bandage bound the patient's knee like a hoop of i
joint was trying as it were to swell, and unable to do so.

I never saw a patient suffering greater torture, and I do not know what would have been the result if I had not arrived in time to give her the relief which she required.

The cases of chronic articular disease which occur in private practice are chiefly in children, the disease being of that kind which depends on a weak state of the general health, and has its seat in the cancellous structure of the bone. The disease is marked in the first instance by a moderate swelling of the joint, and an almost total absence of pain.

In those joints which are superficially situated, as for instance, in the elbow or knee, the swelling is so apparent that it cannot be easily overlooked. It is otherwise where the hip-joint is affected, and hence it is that the disease is more formidable in the hip than elsewhere, it having made greater progress before it is detected.

The treatment of these cases in the early stages of the disease is equally simple and successful. Take the case, for example, of a scrofulous disease of the knee; all that is required is a pair of leathern splints to keep the joint quiet, and attention to the general health, exposure to the fresh air, a nutritious diet, and in most instances the exhibition from time to time of some preparation of iron, with some alterative aperient medicine exhibited according to circumstances.

But let us suppose the disease to be still further advanced, that an abscess is already formed, or that there is a swelling containing fluid which may or may not be an abscess. No difference of treatment is on this account required: though it will be necessary to persevere in it for a much longer time. Not unfrequently the abscess or supposed abscess (for it is not improbable that in these cases it may be only a collection of serum) is absorbed; if it be not, when it approaches the surface it may be freely opened, care being taken to avoid probing and all kinds of rough manipulation; no change of treatment is required afterwards, except that the splints should be taken off and be reapplied daily, and that the splint which is opposite the abscess should be lined with

a piece of oil silk to prevent it being soiled and spoile discharge.

In private practice, where this treatment can be properl out, the success of it is such that it will scarcely ever hap the amputation or excision of the diseased joint will be probably not once in a hundred cases.

If the case is attended to at an early period, the mobili joint is preserved. If abscess has already formed, anl the usual and indeed the most desirable result, as ther less danger of the recurrence of the disease, and as a stiff the limb has been kept in a proper position, is no such v calamity, at least not to be put in competition with tl the limb; but with this view, as I have just mentioned, the whole course of the disease attention should be pa position of the limb. In the case of a diseased knee, for the leg should be kept nearly, but not absolutely, in a line thigh, as otherwise it would be unfit for walking. In th diseased elbow, the forearm should be kept bent; in diseased hip, the thigh should be kept maintained in a l the trunk, and the leg in a line with the thigh, as if the ankylosed with the limb in this position, the patient c very tolerably well, whereas if the joint be ankylosed thigh at an angle to the trunk, the patient is a cripple for tl his life. In this last case a very simple method may be e to remove this inconvenient flexion of the thigh. A leathe fitted to the pelvis and including the thigh, should exter middle of the calf of the leg; it should be applied with the thigh in the position that I have described, and it then v pletely prevent the flexion of the leg upon the thigh, obvious that this is of itself sufficient to prevent the flexi thigh on the pelvis.

As I have said, in the cases where children are affec scrofulous disease, and the general health of the patien tolerably well maintained, even when the disease has m siderable progress, the chances are very much in favou patient's recovery. The disease occurs much more rarel

is different in adults. In them the disease is much more rare than it is in children, but when it does occur it is much more difficult to arrest its progress. As a general rule, when in an adult abscess has formed in a joint, it is not probable that the joint can be ultimately preserved. Still the principle of the treatment to be employed is the same in all cases, and the rules which I have applied in the case of children are equally applicable in that of adults.

There is another class of cases of much less extent than that which I have just described, and having a different pathological history as ascertained by dissection, but which it is often difficult to distinguish in the living body. In these cases there is not that disease of the cancellous structure of the bones of which I have just spoken, and the first pathological change ascertained by dissection is generally an absorption or what may be called an ulceration of the articular cartilages. I do not mean to say, however, that the disease begins in the cartilages themselves, and am more inclined to believe that the first change is in the surface of the bone to which the cartilages are connected; however that may be, the ulceration of the cartilage often goes on to a considerable extent without the formation of abscess; ultimately, however, suppuration takes place, the bone itself becomes ulcerated or carious to a greater or less extent, and the pus becomes infiltrated into the ulcerated surface, giving a dark and sometimes almost a black appearance to the cancellous structure.

This form of the disease is met with chiefly in adults. The symptoms by which it is marked are very similar to those which mark the existence of the scrofulous disease; in fact, the only signs by which the former is to be distinguished from the latter are, that there is a greater amount of pain in the first instance, and an absence of what is regarded as a scrofulous aspect and scrofulous symptoms generally.

The diagnosis being so uncertain, it is fortunate that there is little or no difference in the treatment required. When there is severe pain in the first instance, the patient may perhaps be

relieved by the use of what are called counter-irritants neighbourhood of the diseased joint, such as caustic is blisters; but the fact is, that these are rarely required w means necessary for preserving the joint in complete re be effectually carried out. The principal object for the su keep in view is, that the progress of the disease should be before abscesses form. The chances of recovery are in small afterwards.

There are some cases of comparatively rare occurren may be noticed in this place. The patient has severe pa knee, or in the affected joint, whatever it may be. T becomes in the course of a few days exceedingly severe, is no swelling of the joint. The severity of the pain is s be almost intolerable.

It continues probably for several days, and then unde treatment subsides. The joint being left completely a trievably ankylosed. I conclude that the pathological h such a case is, that there has been a very rapid absorptio cartilages. Fortunately there is a remedy which seems great influence over this distressing malady, and that r mercury. I have generally given it in the form of calon bined with opium, in such a manner as slightly to affect th and omitting its use as soon as the pain has subsided.

While the articular disease which is of most frequent oc in young persons is that which I have described under t of scrofulous, inflammation of the synovial or lining mem that which is of the most frequent occurrence in adults.

There are two symptoms common to all cases of inflamm the synovial membrane, namely—pain and effusion of f the articular cavity; in other respects the disease prese under a great variety of forms.

1st. It differs according to the circumstance in which nates. It may be the result of rheumatism; and aga rheumatic cases differ among themselves, as the inflammat be limited to a single joint, or may exist at the same several joints.

Again the disease may be the result of gout in the system, as indicated by the gouty sediment in the urine, and the presence of other gouty symptoms.

In some cases the inflammation may depend on syphilis, in others may be the result of the use of mercury. A singular form of the disease occurs in connection with gonorrhœa, and there is another to which the name of rheumatic gout is commonly applied. The two latter will require a separate consideration presently.

2nd. Inflammation may be acute, attended with intense pain, great tension of the joint from the effusion of fluid into the cavity, and severe constitutional disturbance; or it may be of a chronic form, with only a moderate degree or perhaps a very slight degree of pain, sometimes not sufficient to prevent the patient attending to his usual occupations. The rules of treatment, notwithstanding the variety of forms under which the disease may exist, are sufficiently simple. In cases of acute inflammation, it may be necessary sometimes to take blood from the arm, while at other times the local abstraction of blood by leeches or cupping, will be sufficient. Purgatives, saline or antimonial medicines, and what is commonly called the antiphlogistic treatment, being employed at the same time. In gouty cases, after the free evacuation of the bowels, the wine of colchicum may be given with advantage.

This, however, is a two-edged weapon, and should be cautiously administered in very moderate doses. In some instances, which would generally be classed under the name of rheumatic, mercurial remedies, such as calomel combined with opium, may be administered with great advantage.

It is desirable that the system should be placed in a moderate degree under the influence of the mercury, and a perseverance in this treatment is rarely required for more than a few days. In the chronic form of the disease, the abstraction of blood even by the application of leeches is rarely required, but great benefit is often derived from the application of blisters and stimulating liniments. In all cases it is necessary that the medical attendant should keep in view the peculiar condition of the system in which

Excrescences of the R

Excrescences of various kinds take plac
the rectum, which patients are very apt to
is one [presenting a specimen]—a sort of
see, of a small size, but I have seen them
It seems to be of the same structure as the
This kind of excrescence is by no means unc
there is a single one; at other times ther
growing from the mucous membrane. In so
occasion the patient scarcely any inconveniene
they give rise to the most extraordinary suffering
makes this difference? The patient suffers in tho
the excrescence comes down when the bowels act,
by the sphincter muscles. Under these circumsta
to become ulcerated, and then the pressure of the
always induces excessive pain, which continues no
excrescence recedes, but for some time afterwards.
to me, complaining of what she called very bad pi
amining the rectum, I discovered a little polypous exc
a state of ulceration, sticking in the sphincter musc
hold of it with a pair of forceps, and snipped it off with t
She felt hardly any inconvenience from the operation, b
surprise, though she had been enduring a great deal of
had been miserable for months, from this moment she w
A lady, not long since, came to my house, from a distanc
country, in whom most severe sufferings were occasioned
of these polypi being ulcerated and entangled in the sph
muscle. I immediately snipped it off; she was complete
lieved; went home, I believe, on the same day, and I hav
doubt has been quite well ever since.

Excrescences of the rectum sometimes take place, of a la
size, which are not of a malignant nature, such as you see h
[exhibiting a preparation]. This I removed from an old lad

symptoms takes place; namely, a more severe and more deep-seated pain in the joint accompanied with painful startings of the limb.

I believe these symptoms to indicate incipient ulceration of the articular cartilages. They are generally to be arrested by the exhibition of mercury, freely administered so as slightly to affect the gums. It is, however, very probable that even this powerful agent may not overtake the disease sufficiently soon to prevent the ankylosis of the joint; this shows how necessary it is that the surgeon should from the very beginning use his best endeavours to keep the limb in that position which may be least inconvenient to the patient if ankylosis should take place.

Under the name of Rheumatic Gout I have in my treatise on Diseased Joints included an affection of the synovial membrane of a very peculiar kind, bearing some relation to chronic rheumatism, to which the name of rheumatic gout is not improperly applied, inasmuch as the disease shows itself chiefly in persons of a gouty diathesis, and as it is often combined with a deposition of lithate of soda among the articular tissues. The disease is very insidious in its origin, probably affecting only a single joint in the first instance, but by degrees extending to others. There is at first only a dull pain in the affected joint, and it seldom happens that the pain is very severe. Fluid is effused into the articular cavity, and eventually the synovial membrane becomes thickened, but the disease is not confined to the synovial membrane; the cartilages become absorbed, and a grating sensation is felt by the hand applied to the joint while it is in motion; this depends upon a very peculiar change which is taking place in the articular cartilages; not only are the cartilages absorbed, but the articulating surfaces are worn apparently by friction. This is most observable in the knee-joint, where the surfaces of the patella and the condyles of the femur present the appearance of having been worn into grooves. The change which takes place, however, here is not only the result of friction; a process of reparation is going on at the same time, so that though the bone is worn away, the cancellous

structure is not exposed, a layer of hard bony matter be posited upon it.

In extreme cases there is scarcely any joint in the bod escapes the disease: it shows itself even in the fingers, th of which appear to be enlarged, forming what are know name of nodosities.

This disease rarely shows itself until after the middle p life; there is none more intractable.

Alterative courses of colchicum, such as I have already de are sometimes useful, but only to a limited extent. The system is that which is generally regarded as indicating th alkalis. The exhibition of soda, however, should be av the combination of lithic acid with soda is insoluble, liable to be deposited in the form of chalk stones, while th of potash is very easy of solution.

The disease which I have just now described may often not only unabated, but gradually making progress for mar ultimately causing the patient to be completely crippled. say that we are scarcely to expect that the disease will b even in its early stage, and that we must be contented if we tigate the inconvenience which it produces and retard its p

There are some circumstances peculiarly affecting the h which seem to require some special notice, and which therefore reserved for separate consideration.

In the common scrofulous disease of the hip-joint, and other cases in which the cartilages become ulcerated, it may that the head of the femur becoming extensively destro ulceration, and the bony margin of the acetabulum partially destroyed, there is nothing to prevent the femu drawn upwards by the action of the muscles. In conse the limb is shortened, and presents very much the sa pearance as in the case of fractured neck of the femur; other cases, before there has been time for the head of the to be destroyed by ulceration, the cavity of the acetabulum become filled up by coagulated lymph, and what is call

round ligament of the joint having become destroyed by ulceration, the head of the femur is thrust outward beyond the margin of the acetabulum, and there being nothing then to prevent it, the muscles draw the bone upward, so that it is lodged on the dorsum of the ilium; there is, in fact, a complete dislocation, marked by the usual signs of dislocation upward and backward, the limb being shortened, the thigh bent forward, and the toes turned inward. The surgeon should always bear in mind the probability to such a dislocation taking place; 1st, because the effect is to make the patient a cripple for life; and 2ndly, because much may be done to prevent it.

The head of the femur is much more likely to escape from the acetabulum when the thigh is bent forward than when it has been preserved in a line with the body; and as I have already explained, this last object is to be obtained by the application of a proper splint in the beginning.

Inflammation of the synovial membrane of the hip is of much less frequent occurrence than inflammation of the synovial membrane of the knee, or ankle, or elbow, a fact which may be explained by the great mass of muscle within which the hip-joint is included, and which protects it in some degree from the external cold, and from sudden changes of temperature. When, however, the hip is affected in this manner the disease is marked by a very unusual amount of pain, often attended by very great constitutional disturbance. This is explained by the circumstance of the synovial membrane being everywhere covered by the strong capsular ligament. The pain in these cases is referred to the inside of the thigh below the groin.

As the capsular ligament gradually gives way, the head of the femur is thrust outward, the round ligament of the joint is destroyed by ulceration, and ultimately the head of the femur, as in the cases before mentioned, is dislocated in the direction upwards and outwards. This does not happen without a great amount of previous suffering, both local and constitutional, which is not relieved until the dislocation has taken place.

patient miserable for life, for ther
afterwards; whereas, if you divide
inconvenience is altogether avoided

The operation of dividing the s
painful, except in those cases where t
ulcer at the back part of the rectum
hæmorrhage of consequence, as the p
plug of lint, will always command it.
and the very next time that the patient
is an end of all the pain and difficulty wi

It is better, however, that she should
immediately after the operation, and the
her an active purgative on the preceding
afterwards to keep the bowels constipated.
days castor oil may be exhibited, and the
wound requires very simple treatment; a li
may be applied to it till it is cicatrised; a
generally completed in about three weeks.

No inconvenience whatever follows the divisi
muscle, except it be made, as I have mentione
in the direction forwards. The patient retains
as ever, and yet the difficulty of voiding them i
the symptoms, so far as I have seen, are perma
I have performed this operation of dividing the sp
for this disease, and in other cases, a great many
have been accustomed to say that it is an operati
danger; but, after all, there is no operation in surge
the slightest, of which we can assert this as a general
or as one to which there are absolutely no exceptions.
that we can venture to say is that the probability of any
is so small, that we ought not to calculate on it; and that
to calculate on such chances in the common affairs o
should do nothing. I have known two instances of perso
after the extraction of a tooth; I have known others die i
quence of being bled in the arm, or of erysipelas occurrin

as compared with other cases of abscess in the joint, is explained by the fact that the bone is in a healthy condition. There is a greater prospect of recovery where a diseased joint is in an upper extremity than where it is in a lower extremity, in consequence, it may be presumed, of the greater proxmity to the vital organs, the heart and brain; especially the former.

Recovery takes place more frequently in the joints of the toes and fingers, than in the larger articulations, but only for this reason, that from their smaller size the patient's constitution does not suffer in the same proportion, and therefore the surgeon has more time at his disposal to do what is required; something here depends on the toe or finger that is affected. The loss of the thumb or fore-finger is a much greater calamity than that of the little finger, and therefore a greater effort may be made to preserve the former than the latter.

The loss of the great toe is a very great calamity also, and may often be preserved under what appears to be very extreme circumstances.

The daughter of a medical practitioner laboured under what I believe to have been a scrofulous disease of the joint of the metatarsal bone with the big toe. There was extensive suppuration, much swelling of the neighbouring parts, the great toe itself seemed to be of three times its natural size. But the patient's health in no way suffered, and there was little local pain. I applied a stiff leather splint to the sole of the foot, including the whole from the heel to the points of the toes, and lined with oil silk. With this I allowed the patient to walk about. If my recollection be accurate, it was not until after the lapse of two or three years that exfoliation took place of a piece of bone forming part of the articulating surface. After this, suppuration ceased, the abscesses healed, the swelling by degrees entirely subsided, and the patient recovered with a perfectly useful great toe, with which she could walk and dance as well as her sisters. I have seen many cases of diseased toes and fingers recovering under this simple treatment.

In the case that I have just referred to, a large portion was dead and exfoliated. It is very rare indeed for so fa a result to occur when there is exfoliation of the bone i the larger articulations.

CRACKLING SENSATION OF JOINTS.

A provincial advocate at Bristol in 1842 came to me com of a singular crackling sensation in the upper and bac the neck, close to the occiput. It is produced by certain m the head, and he said that he not only felt the crackling, heard it so distinctly, that he wondered it was not heard b The sensation was disagreeable, but not actually pain inclining his head to the right side, and at the same tim it some peculiar movement, he experienced a numbne thumb and the finger of the right hand, which are supplie median nerve. The same sense of numbness was experi other times, but in a less degree. Pressure on a partic on the fore part of the axilla produced an increase of thi ness.

He led a sedentary life, his mind being much occupi was troubled with acidity of the stomach, and his urine de large quantity of lithate of ammonia, staining the vessel colour.

I have seen some other cases which in essential circu bore a great resemblance to this, and in all of which th was of a gouty habit, indicated by other symptoms.

It is difficult to say in such cases in what manner the crackling sensation of the joints is produced. We know t mately in gouty cases the cartilages of the joints become a and that then the exposed surfaces of bone may be felt gr each other; but the crackling sensation in cases, like t described cannot be accounted for in this manner, as it only temporary.

I remember an instance of a gentleman who suffered fr

might be called rheumatic gout, affecting one knee. The motion of the joint produced a crackling sound, which might be heard at some distance. But he ultimately recovered from the complaint, and the crackling disappeared with the other symptoms.

FOREIGN BODIES IN THE ŒSOPHAGUS.

In the year 1806, a poor woman applied to me supposing that she had swallowed a piece of bone, which had stopped in the œsophagus. Probangs and bougies had been previously employed without the bone being detected, or any good result. She was unable to swallow, and complained of pain, which she attributed to the bone sticking in her throat. These symptoms continued unabated on the evening of the day subsequent to that on which the bone was swallowed. It appeared to me probable, that the supposed piece of bone had passed into the stomach, and accordingly, instead of making any further attempts with the probang, I administered an opiate glyster. After this she became composed and went to sleep. The next morning she could swallow, and in a short time all the symptoms subsided.

In May 1808, a poor woman came to London who had swallowed a hard lump of meat the night before, which she supposed had stuck in her throat ever since. Attempts had been made in the country to relieve her by the use of the probang, but without any benefit. On her arrival in town she complained of great uneasiness in her throat behind the larynx, as if something was lodged there, which totally prevented her from swallowing even a drop of liquid. She had frequent retchings, and brought up every now and then a transparent fluid from her stomach. During the day she made many attempts to swallow, but to no purpose. In the evening she was in a state of great uneasiness and irritation. She was directed to go to bed, and an opiate glyster was administered. Soon after this she became more composed, and went quietly to sleep. She woke on the following morning, and found she was

able to swallow. Some slight uneasiness remained, but following day she was quite well.

I have thought it worth while to record these cases as a examples of what I believe to be of not uncommon occ viz.: that when a foreign body has entered the œsopha sensation which the patient experiences often leads him t that it still remains there, although it has actually passed stomach.

In like manner as the sensation produced by a small gravel or sand within the eyelid remains after the sand c has been dislodged.

In such cases any attempt to relieve the patient by th bougies or probangs, would be of course not only unavai might probably be injurious.

As a general rule, I am convinced that it is right wh supposed that a foreign body is lodged in the œsophag very cautious in having recourse to the use of the pr other mechanical appliances. 1st, because there is cons probability of the case being like one of those just related the patient being deceived by his sensation of a foreign the throat, although it has passed into the stomach.

2nd. Because if it be otherwise, it is more than merely that the foreign body will ultimately find its way into the without any surgical assistance.

3rd. Because it has not unfrequently happened that troduction of a probang into the œsophagus, especially w is done in a careless or rough manner, has done injur œsophagus itself. If any good is to be done by surgical tr in these cases, it is for the most part where the foreig lodge in the larynx or quite in the upper extremity of t phagus. I may take this opportunity of observing that never known a single instance of the so-called cases of stri the œsophagus in which the patient derived benefit from troduction of bougies, and I know that the result of this has been in many cases very injurious.

ually be enabled, in the early stage of the disease--I will
o restore the gut to its natural diameter—but to dilate
ture so much that the evacuations may be readily dis-
, and that the patient may suffer but little inconvenience
I saw not long since a lady, respecting whom I had been
ed about three or four years previously. At that time the
e was so great, that I could introduce only a small urethra
. I directed her to commence a course of bougies, which
dical attendant introduced for her. They were very gradu-
creased in size; and when I last saw her the stricture would
one of very large diameter; and she experienced no more
e slightest inconvenience from the complaint. Here, as in
f stricture of the urethra, the use of the bougie must be
ued. If it be neglected, the stricture will return, and be
than ever.

ome cases of this disease you may facilitate the process of
the following manner. In the cases to which I allude, the
re is situated about two inches above the anus, and occupies
small portion of the length of the gut. It forms a circular
embracing the finger, as narrow as a cord. A stricture of
ind may be divided in two or three parts of its diameter,
you begin the use of the bougie, in the following manner:—
uce a bistouri caché, and let the screw be so adjusted that
ade may be opened about the sixth of an inch, but certainly
ore than a quarter of an inch. The bistouri must be intro-
with the blade shut; then press on the handle, open the
and, drawing it out, you nick the stricture first in one part
diameter, then in another, and then in a third. This being
a larger bougie may be introduced than could be done
, and the process of cure is very much expedited.

in a great number of cases where the disease is far advanced
generally speaking, you are not consulted till that is the case,
ally in hospital practice), you cannot resort to the use of the
in the first instance, or, if you do, it must be employed in
nation with other remedies. It will be necessary to lessen

the irritability of the bowel by th
suppository every night, a gentle ap
morning. The patient may take a co
with balsam of copaivi; half a drachm
minims of the liq. potassæ, three drach
and about nine drachms of carraway w
composition may be taken three times
advantage. Mr. Bryant, a practitioner i
two or three years ago, recommended
achillea millefolium, which I have emplo
cases with manifest advantage. About two
millefolium may be put into a pint and a
may be boiled down to a pint, of which a
wine-glass three times a day. The achillea mi
the herb-shops in Covent Garden; it is not in t
although it has been always a popular remedy.

Where abscesses have formed in the neighbou
it is of no service to lay them open. I have to
occasions, that if abscesses are connected with dis
they are not likely to heal; and you only make th
by laying them open, there being, of course, a much
of raw surface after the operation than before. If th
are to be healed at all, it can only be after the strict
fully dilated.

In some cases the fæces accumulate above the st
bowel in this situation becoming distended into a large ha
an immense reservoir of feculent matter, always pressi
the stricture, and aggravating the disease. It is very i
to empty the bowel which is thus loaded; and you can o
in the following manner:—Introduce an elastic gum
through the stricture into the feculent mass above; injec
water, or tepid soap and water, or a weak solution of
alkali; and by repeating this operation, and washing out th
with warm water every day, or every other day, you may a
get the whole of the feculent accumulation dissolved, and em

every three hours, afterwards reducing the quantity of calomel, but continuing it until the inflammation of the throat had subsided, so that there is good reason to believe that he owed his cure to this remedy. During the time that the affection of the throat and mouth lasted, the mucous membrane of the nostrils also became ulcerated, the ulceration extending to the pharynx. These symptoms lasted altogether two months.

TUMOURS OF THE RECTUM.

In 1843 I saw a lady more than 80 years of age, who laboured under a tumour of the rectum, which descended through the anus so as to protrude externally whenever the bowels acted.

The tumour was of the size of a very large double walnut, of an irregular shape, of a soft brown vascular texture, connected with the mucous membrane within the sphincter by a neck three-quarters of an inch in diameter. There was sometimes considerable hæmorrhage, and it caused great pain. I passed a strong double ligature through the neck of the tumour, and having tied one ligature on one side and the other on the other side, I removed the tumour by cutting through the neck below the ligature. The operation gave very little pain, and in about a week the remains of the neck of the tumour came away as a slough.

The disease appears to be very rare, as these are the only instances which have occurred under my observation; and I am not aware that it was ever described in books until I gave some account of it in my lectures, published in the 'Medical Gazette,' some years ago.

I saw exactly a similar case many years ago in an old lady, 90 years of age. The tumour was of the same kind, but much larger. I cut off the tumour below the ligature, and the case did well. But I believe that the tumour returned some time afterwards, in consequence, I suppose, of a part of it not having been included in the ligature. However, the patient lived in comfort for some

the dissecting room, or of surgeons wh
number of examinations in the dead h
they will bear testimony to the correctne
stated.

Nevertheless, an opinion has of late years
members of our profession that a stricture
is a very frequent cause of constipation of th
known an almost incredible number of per
treated on the supposition of their labouring
by the introduction of long bougies into the
evidence of the existence of a stricture in th
1st, that there was obstinate costiveness; 2nd,
duced into the rectum could not be made to p
certain number of inches beyond the anus.

But what is the value of this evidence when co
which anatomy affords of the rarity of this kind of
there not many causes of a costive state of the
mechanical obstruction? Will it be always easy, e
healthy rectum, to introduce a bougie more than a
it? Although we call the lower bowel the rectum,
well that it is anything but a straight gut. Three o
above the anus the rectum begins to make flexures, w
as you trace it upwards, until they terminate in the sig
of the colon. These flexures of the rectum differ
individuals, and even in the same individual at differ
When a bougie is introduced, be it small or large, it
that it will be stopped somewhere or another by one
flexures; and nothing can be more unphilosophical th
clude, because a bougie meets with an impediment at the
of five or six, or eight or nine inches, that this is the resu
organic disease of the rectum, when the natural formation
parts will sufficiently account for it.

But let us suppose that you actually meet with one of tho
cases in which there is a stricture in the upper part of the re
by what means are you to recognise the disease in the l

was made, and in which the cause of the absence of pulse was fully explained.

A gentleman of middle age was under the care of Dr. Watson and Sir H. Holland for symptoms which indicated some kind of cerebral disease. At the same time he laboured under other symptoms, which indicated disease of the heart, there being a considerable bruit perceptible by the ear. By-and-by the pulse became feeble in the right wrist, while that in the left wrist was full and strong, and by degres the pulse in the right wrist became altogether imperceptible. I was present at the post-mortem examination.

We found the arachnoid membrane of the brain in a state of inflammation with an effusion of fluid in the ventricles, and of serum and lymph among the membranes. The pericardium contained three or four ounces of fluid. The heart was flabby. There was a slightly wasted and reticular appearance of the semilunar valves of the aorta. The surface of the membrane lining the left auricle of the heart had lost its natural smoothness, and attached to the mitral valves was a mass of what appeared like coagulated fibrine, closely adhering to the surface on which it lay, and of a coarse structure as if long deposited. It was evidently quite different from the coagula formed after death, but it did not seem to be organised. It was of the size of a small hazel-nut. In the subclavian and axillary artery of the right side there was a long dense mass of coagulated fibrine, which did not adhere to the inner surface of the vessel. It bore no resemblance to the coagula found after death, being much more dense and compact, and having in it very little of the colouring matter of the blood.

Although in this case the absence of the pulse is sufficiently explained by the formation during life of a coagulum in the heart and arteries, the reason of such coagulation having taken place must still be a matter of speculation.

It is remarkable that in this case the patient laboured under cerebral disease, and it is well known that the effect of some diseases of the brain is to reduce the frequency of the action of

evacuations, of constant pain—which, howe
vated after the fæces have been voided. Th
charge of mucus; sometimes of blood, or of
blood. If you examine the bowel at this pe
with the finger, you find the inner surface of
brane irregular, as if it were lined with a mult
excrescences; or as if your finger came in cont
covered with warts. There are generally, at the
small flattened excrescences to be observed at th
anus; something like shrunk or collapsed external p
Besides this, it seems, in some instances, as if the
brane in the interstices between the excrescences
there in a state of ulceration. The examination w
which is necessary for the ascertaining all these poi
patient extreme pain. Generally about an inch and
inches above the anus, you find a circular contraction,
but at other times there is no contraction whatever in th
while there is a very contracted state of the anus itself
instances there is the diseased state of the mucous
which I have described, without contraction anywhere
the contraction is an accidental, and not a necessary a
ment of the disease.

When the disease goes on still farther, inflammation tak
in the cellular membrane in the neighbourhood of the gut
abscess forms, which bursts externally, near the anus, or
nates, or in the perineum. Other abscesses form which
in other situations, one after another, in the same man
after common stricture of the rectum. Sometimes an ab
forms in front of the rectum and bursts into the vagina, maki
communication between the two organs. These abscesses com
to form for an indefinite time, so that ultimately there are a g
number of orifices, all of which remain pervious. The absce
seem, in fact, to have no disposition to heal; but sometimes th
get into a quiet or tranquil state, there being but little inflamm
tion, but little discharge of matter; and then, all at once, inflam

In another case, in which the patient was attended by Sir Henry Halford and myself, there was a complete absence of the pulse in the whole of the left upper extremity, attended with considerable pain in the limb from the shoulder downwards. The patient appeared to be otherwise in good health. I heard of this patient having died some years afterwards of an aneurism, as I understood, of the aorta: I was not able to learn any other particulars.

SLOW PULSE.

In July 1840 I was consulted, together with Dr. Foley, by an old lady 91 years of age, labouring under mortification of the toes, which had begun a few weeks before. Her pulse was only thirty-six in the minute. Dr. Foley said that it had never been more frequent during the last ten years in which he had known her, and her relations said that they believed it to have been always the same. She had enjoyed excellent health, the complaint for which I was consulted being the first illness which she had had since Dr. Foley had been acquainted with her.

In December 1841, I saw a young man about 21 years of age, who had a pulse of forty beats in the minute, and who had always been in perfect health.

VASCULAR NÆVUS OF THE PAROTID GLAND.

A child of 4 months old, who had been under the care of Mr. Ray of Sittingbourne, was sent up to London to see Sir A. Cooper and myself, having an enormous vascular nævus in the situation of the left parotid gland, another of a smaller size on the lower lip, and several on the right side of the forehead. Sir Astley Cooper and myself regarded the case as being irremediable and hopeless. Subsequently, however, I received the following statement from Mr. Ray:—

'The child's health continued to be good. At about 7 months it cut its first tooth, and from that time all the tumours began to diminish spontaneously. At present the child is 18 months old.

The large nævus near the parotid gland has entirely d
those on the head have disappeared also, and the only
these morbid growths is a little thickening of the
patient is in fine health.' I have seen some other cas
vascular tumours of the same kind disappeared spo
These cases must be regarded, however, as excepti
general rule, and it would undoubtedly be very unsaf
the chance of such a natural cure in any case in whi
can be safely removed.

FISTULOUS COMMUNICATION BETWEEN THE URETHRA AN

I was consulted by a married lady on account of
communication between the urethra, near the neck of t
and the vagina, the result of sloughing after partur
opening was of considerable size, and the patient r
urine with great difficulty, voiding very small quantitie
and altogether suffering very great inconvenience.

I had heard of a similar case in which the late Si
had been able to afford the patient much relief by mer
the remaining portion of the membrane of the ureth
the external meatus and the preternatural opening. A
I performed the same operation in the present inst
having done so I proceeded further to make an appli
the nitrate of silver to the margin of the remaining po
urethra. This application was occasionally repeated a
of two or three days. She went into the country, a
four years after I had the opportunity of learning the
the husband, who informed me that she had derived g
from the operation, and that she could retain the urine
for six hours.

ENLARGED GLANDS IN A CASE OF MALIGNANT DISEASE, SUBSIDING AFTER THE ORIGINAL DISEASE WAS REMOVED.

The following case seems worthy of being recorded.

I was consulted by a gentleman who laboured under a disease of the glans penis, apparently carcinoma, with an enlarged gland in the groin. As the first-mentioned disease was productive of much distress I amputated the penis, though with little expectation of an ultimate cure without removing the diseased gland.

I heard of the patient afterwards. The enlargement of the gland had subsided, and he continued well otherwise.

TREATMENT OF ENLARGEMENT OF THE PROSTATE GLAND.

In my published lectures I have described the effects of diseased enlargement of the prostate gland, which occurs more especially, but not exclusively, in advanced life. It is not, however, my intention at present to recapitulate what I have said elsewhere, but the following observations will relate only to one circumstance connected with this disease, viz. the treatment of those cases in which there is not merely a partial, but absolute and complete retention of urine in the bladder.

When there is that partial retention of urine in the bladder to which I have just referred, it rarely happens that there is any difficulty in giving the patient relief by the introduction of a catheter into the bladder; indeed he may generally, even from the beginning, do this very well for himself. For this purpose he should be provided with an elastic gum catheter, prepared, as I have stated elsewhere, by having been kept so long on a curved iron wire, that it may retain the curved form after the wire is withdrawn. The patient should use it without the wire, the instrument being sufficiently curved to adapt itself to the course of the urethra, at the same time that it is so pliable that no harm can arise from its use.

Where there is a complete and absolute retention of the urine

in the bladder, it may be that the gum
form which I have now described, may be
in other cases. But that is not the genera
part the surgeon will find it necessary to
the silver catheter or to the elastic gum
iron stilet, and the introduction even of
ments is not always an easy process even t
enced surgeon.

But the patient may be seized with su
where the assistance of such an experien
obtained. Perhaps the surgeon is one w
nice and tender treatment which, in th
urine, is required. The catheter does not
the urethra bleeds; it is withdrawn, and
of a different shape; some force is appli
penetrates further, but no urine flows.
catheter slips in easily enough, and the p
may be that it is made to enter by consi
applied to it, and the patient is relieved
catheter has been forced through the solid
tate. If the catheter be withdrawn, the
again distended, and a catheter must aga
when the same difficulty in using it occurs
in an aggravated form.

If a surgeon be called to a patient und
and succeeds in introducing an elastic
bladder, the only chance of recovery whi
patient is that which may arise from allow
retained in the urethra by a suitable band
the orifice, by removing which the patie
whenever he finds it necessary to do so.

But however carefully the catheter m
bladder, and however rarely it may be fou
it and replace it by a new instrument, that
the ill consequences that arise from the p

lation. The patient may suffer considerable pain referred to the urethra and neck of the bladder; the skin becomes hot and the pulse frequent, the patient has a rigor, and perhaps a succession of rigors, the urine becomes ammoniacal and offensive to the smell, the tongue dry, the belly becomes distended with air, there is hiccough, not unfrequently an offensive purulent discharge comes away by the side of the catheter, and as might be expected under these circumstances, death ultimately ensues.

In a case of the kind which I have described, and in which there had been at different times, as I understood, great difficulty in introducing the catheter, the following appearances were discovered on dissection.

The prostate was enlarged to two or three times its natural size, the posterior portion of it made a sort of ridge of the size of an almond behind the inner orifice of the urethra. There were some longitudinal grooves on the surface of the prostate which probably indicated the position occupied by a catheter which had lately been introduced and allowed to remain in the bladder. At the posterior part of the bladder between it and the left vesicular seminalis, there was a sloughy abscess, the cavity of which might have contained two or three drachms of fluid. In front of the abscess was a small opening extending through the mucous membrane, and forming a direct communication between the abscess and the cavity of the bladder.

At the base of the ridge-like projection of the prostate there were two openings, through each of which a probe or gum catheter might be passed through the substance of the prostate into the bladder. The communication with the bladder being about an inch behind the prostate.

These false passages were of a round shape, with smooth edges, and evidently of long standing. Through one of them a probe might also be passed into the cavity of the abscess.

My object in entering into the foregoing details is to show how very important a part of surgical treatment the introduction of the catheter in a case of retention of urine from enlarged prost

really is. A surgeon who never meets with any difficulty forming this operation, where the parts are in a health may find a difficulty here, and it would be presumptuous, the most careful and experienced surgeon, to say that difficulty may never occur to himself. There is no one, h limited his field of practice, who may not at some pe another be called upon to administer to a case of this kind this being so, it is the duty of hospital surgeons and teac impress on the minds of their pupils the importance of this operation an object of their especial study, so that th be as well qualified as possible to do what is required o when the occasion occurs.

I do not know whether it is so at the present tim formerly the instrument makers were in the habit of what were called prostatic catheters, made of silver; the of a large size, more curved and much longer than o catheters.

For many years I had such a catheter as this in my pos but I am not certain that I had occasion to make use o suppose that the great length given to the catheter was supposition of the prostate being so much enlarged that th could not be reached otherwise.

But the fact is, that those enormously enlarged prostate we sometimes see displayed in pathological museums, are r very rare occurrence, and the retention of urine more fre is met with in cases in which the prostate gland is only mod enlarged, but with a small or nipple-like projection behi inner orifice of the urethra.

The catheters which may be used on these occasions a those made of silver. 2nd. Those made of elastic gum su by a curved iron wire or stilet. 3rd. The last-mentione without the stilet, but which have been kept upon it long to acquire permanently more or less of a curved form. O the latter are to be preferred wherever they are found to the intended purpose, and for this reason, that being to a co

this: if you consider in what manner a malignant ads, when once established in a particular organ, and ill success which attends the operation for its removal, performed under the most favourable circumstances, and whole organ can be taken away, can you reasonably at it will succeed under such circumstances as these, n cannot take away the whole organ, and where it must doubtful whether you have been able to make a complete sfactory examination of the diseased part previously? nsider, if much of the rectum were to be removed, what a operation it would be, and in how miserable a plight the would be left afterwards? If ever such an operation be le, it must be surely only under some very peculiar cir- nces where the disease was very low down in the gut, and n its earliest stage. In ordinary cases it ought to be entirely the question, as one which no conscientious surgeon can his patient to submit to.

ate injections into the rectum, and injections of linseed oil, in its pure state or combined with lime-water, are sometimes l in allaying the irritation of the rectum; and alkalies may iven internally, either with balsam of copaiva, or otherwise oined. In the advanced stage of the disease you must give patient opium; you cannot help doing so; and, indeed, he st be kept very much under its influence to make life at all portable. Yet there are great objections to the use of opium e, as in most other cases. You seldom meet with a patient on om opium confers a benefit, without a corresponding evil. pium, it is true, relieves the pain for a time, but it makes the wels costive, so that it is very difficult to manage them. It ops the secretion of the liver, disorders the stomach, and injures he general health, making the patient at the same time nervous nd irritable. Therefore I advise you not to give opium till you re driven to it. In the advanced stage of the disease all that an be said is, that you must have recourse to it as the least of wo great evils.

It cannot be said that in performing this operation som of hæmorrhage can absolutely in all cases be avoided.

There are cases in which the prostate gland is so vasc it will be caused to bleed by the slightest touch. But th are comparatively few. As a general rule, there ought hæmorrhage; and if there be hæmorrhage, the presumpti the surgeon has been too rough in his proceedings.

Such a case under these circumstances is always to b at with anxiety as to the future.

If the point of the catheter has penetrated through th into the surrounding cellular tissue, there is a very great d the urine penetrating into it, and of a putrid urinous with all its ill consequences, being the result; as the esc single drop of urine is sufficient to do all this mischief.

If the point of the catheter should have penetrated far this, and, as in the case which I have related, have passed space between the bladder and the rectum, I need sca that the danger is greatly aggravated.

Of course the facility of passing the catheter depe much on the previous opportunities which the surgeon h performing the operation, but the most inexperienced s he is careful in his manipulation and avoids all hurry and will seldom fail in his attempt; at any rate he will do and will not by lacerating the urethra add to the diffic more experienced person who may be called in afterwar

I understand that it has been sometimes proposed cases to place the patient under the influence of chlorofo the catheter is had recourse to; whatever may be the this mode of treatment where there is retention of u other causes, there are very grave objections where the depends upon an enlargement of the prostate gland.

There is no spasm here to be relieved, so that the cl can do no good; the only effect that it can have is th venting the patient from feeling pain, and this is just wl not to be; if the catheter causes any considerable amou

ON DISEASES OF THE MAXILLARY ANTRUM.

draw your attention to-day to a case in one of the ards, that of Samuel Tovey, admitted on the 1st of this

years ago he fell down as he was walking on the slippery nt, by which his nose, and the whole left side of his face, ruised. Ever since he has had pain of these parts. The le of the face became swollen; the pain increased, and matter scharged through the nostril. Matter also occasionally made y through one of the alveoli of the superior maxillary bone; e continued in this state at the time of his admission into ospital.

the 7th November I made an incision which separated the r lip, or rather the cheek, from the jaw; and a probe having introduced, it appeared to me that the extremity of it came contact with a portion of dead bone, in the situation of the rum maxillare. I then introduced a pair of strong sharp-ted scissors, using them in their closed state as a chisel, to ak down the thin plate of bone above the grinding teeth, so as expose the cavity of the antrum, in which I could then feel ll fragments of dead bone, some of which were extracted. On following day some other small portions of dead bone passed ugh the nose. There were now swelling and pain on the left of the face, with a good deal of headache, and a frequent se. The patient was ordered to be purged. On the 9th, two s after the operation, he had shivering, and was delirious in the ht. On the 10th, however, he was much improved, able to up, and to-day, the report is, that the pulse is slower, easily pressed; the tongue clean; the bowels open.

Here was a patient who had me
and face eight years ago, who had
now I have made an opening int
fragments of dead bone which were
there are other fragments there; and
away through the opening that has be
question that, at the time of the injury,
on the bones, which caused portions of
afterwards coming away by themselves,
removed without this operation.

The occurrence of this case affords
speaking to you concerning diseases of
generally. I am glad to draw your att
because it is one of great interest, and also
think there is in general any very clear acc
writers. I may add another reason, namely,
of the antrum are not sufficiently common
of you to become masters of the subject by
one or two years' attendance on hospital practi

Inflammation of the Maxillary Antrum in
Local Causes.

I have seen cases, and to these I shall first call
in which there appeared to be inflammation of
antrum, independent of a local cause, arising out
in the state of the constitution, and approaching in
a good deal to that of severe rheumatic inflammatio
know that I can make you acquainted with the hi
disease of which I am now speaking, better than by d
you the circumstances belonging to a particular case,
happen to have preserved notes. I was consulted with M
of Norton Street, respecting a young man who comp
excessive and constant pain referred to the situatio
maxillary antrum of the left side. There was some deg

the lining membrane, causing an increased secretion of fluid from its surface.

SYMPTOMS PRODUCED BY THE INOCULATION OF FŒTID MATTER.

Mr. Howship had occasion in the parish poor-house to examine with his finger the state of the rectum in a male patient. The patient was fat and helpless, and a great quantity of dirt and fœtid secretion covered the forefinger which was introduced into the gut. Three or four days afterwards a vesicle appeared on the finger, which afterwards became pustular. He punctured the pustule several times, but it always filled again; the surrounding skin became of a deep red colour, and at last the pustule became smaller, which after some time healed under a poultice. About a fortnight after the appearance of the vesicle, a swelling took place in the axilla, he had a rigor, and his general health became affected in the following manner:—His pulse was frequent and feeble, he was depressed and enervated, lowspirited, he had horrible dreams. He continued for some time in this state; took bark and wine, which seemed to make him worse; then went into the country, and in four days perfectly recovered his health.

CASE OF FISTULOUS OPENING IN THE GROIN CURED BY POSITION.

A lady consulted me concerning an abscess in the right groin connected with the cæcum, and discharging a large quantity of feculent matter. She had laboured under this disease for a considerable time, I believe for three months, and I do not feel quite certain as to the exact period. I recommended her to remain in the prone position on what is called a prone couch, and under this treatment she speedily recovered. I was led to recommend this treatment, having found it to be useful in another case. I suppose the success of it arises from the opening of the cæcum being at the back part of that intestine.

LUMBAGO.

I believe that the painful affection of the loins, knov the name of lumbago, is generally supposed to be a rl affection of the muscles. I am myself inclined to beli it has a more deep-seated origin, and that the actual se disease is in the lower part of the spinal cord itself, or a the nerves which arise from it. My reason for holding thi is as follows:—

1st. That in many instances the pain is referred not or muscular structure, but to other parts, the os sacrum for That there is often a sense of weight in the lower limbs as of weakness bordering on actual paralysis. In fact, I only seen some cases in which there seemed to be con danger of the lower limbs being paralysed, but also on which complete and permanent paralysis supervened.

This case was one of a gentleman whom I saw in con with another surgeon, and whom, apprehending that t danger of paralysis taking place, I recommended the r treatment, having found the use of mercury to be useful similar cases. I saw the patient at that time only once, b a year afterwards I was desired to see him again, and I th him in the state which I have described, that is, with limbs completely paralysed.

It was by mere accident that on the same day I was en see some anatomical preparations in the pathological coll the late Dr. Davis of the London Hospital. Among the specimen of the lower portion of the spinal cord, with called the cauda equina covered with an effusion of co lymph, evidently the product of inflammation. On cal Davis's attention to it, he informed me of the circumst the case, which bore so near a resemblance to those of the which I had just left, that I could not but suppose tha latter had died, and the body had been examined, the part have presented the same morbid appearances.

The intense pain which follows any attempt to use the

rendering the face on that side œdematous, with a slight f red discoloration on the surface; and the patient may in this condition for a great length of time. In some atter is discharged by the nostril, but not always, for the nation of the antrum may have the effect of stopping up fice where it communicates with the nostril, between the rbinated bones. When the opening of the antrum remains us, the patient will, of course, experience occasional relief he matter passing into the nostril. I have said that some- there is, and sometimes there is not, a fragment of dead but this, as far as I know, makes no difference in the oms, although when there is dead bone, the recovery of the t may be expected to be more difficult and tedious.

atment.—In these cases you may relieve the symptoms for e by applying leeches to the cheek, by the exhibition of ives, and by adopting what is called an antiphlogistic ent of other kinds. But it is evident that such antiphlogistic ent can only relieve the symptoms—it cannot strike at the f the disease.

first thing to be done is to extract the dead tooth; and it e that this is all that is wanted. If, when the tooth is drawn is a free communication between the alveolus and the cavity antrum, the matter is discharged through the opening, and tient is immediately relieved. In other cases, however, when oth is drawn, either the abscess of the antrum does not rge itself at all through the aperture, or it does so only in perfect manner. The plate of bone between the alveolus he antrum is generally very thin, and you may easily in- e a sharp-pointed instrument into the bottom of the alveolus the tooth is extracted, and break it down so as to establish ommunication which is wanted. This must always be done ver the extraction of the tooth does not leave any or a ent opening for the discharge of the matter from the cavity

instrument with which you make the opening should be

I prescribed an aperient of blue pill, with the compo of colocynth, to be taken once in a week; a regulate an alkaline draught to be taken at the commencem attack.

I am led to record this case, because it involves the tion of some questions of importance in pathology, a medical and surgical practice.

1st. It is to be observed that the pain was relieved *i* on taking the magnesia. Now the magnesia being i insoluble substance, cannot be supposed to be at once the blood, and it can be scarcely doubted that its o confined to neutralising the acid in the stomach.

The conclusion from which is, that the pain in th the effect of sympathy of the loins with the stomach, the absorption of acid.

Many analogous instances have presented themselv pains or other symptoms occurring under the sam stances.

A gentleman awoke in the middle of the night wi severe pain in the testicle, he was at the same time sen peculiar feelings arising from an accumulation of a stomach.

A full dose of sal volatile immediately relieved him l one and the other.

Another person consulted me concerning severe fits o the legs, to which he was liable at night. It seemed to could trace them to the same source, viz. an accumulati in the stomach.

I advised him, whenever they occurred, to take about of a tea-spoonful of magnesia in water. The result has almost immediate relief of the cramp.

2nd. Although I suppose it may happen that an ac mentation may take place in the stomach of substances into it, it is not in this way that the accumulation of a organ usually takes place. The patient may take a

t the natural opening between the two turbinated bones d up, and you will then have a little more trouble in the cavity of the antrum thoroughly out.

s suppose another case—viz.: that a dead tooth has been to remain until it has produced suppuration of the antrum; has then been extracted; that nothing further has been nd that the patient has been left either with no opening at tom of the alveolus or one that is insufficient. Under these stances, the bottom of the alveolus becomes filled up with ne, the edges at the inferior part are absorbed, and the cavity no longer exists. It is absolutely necessary to the 's recovery that an opening should be made into the antrum: ere, in such a case as this, would you make it? In the n of the alveolus? This is an awkward place for the e, on account of the thickness of the bone which you have etrate. It may be a good situation when the tooth has just rawn, but it is a very bad one when the jaw has become dated afterwards. The best mode of making the opening raise up the cheek so as to expose the membrane covering m on the side of the face, and with a scalpel make a transncision down to the bone. Always make this incision h the membrane before you begin to perforate the bone. case I did otherwise, thinking the division of the membrane, eparate part of the operation, was unnecessary; but the uence was, that the blood escaped into the cellular memeneath, and there was an immense ecchymosis, making the the operation very difficult. Always, then, divide the ane first, where it covers the jaw just above the alveolar es of the grinding teeth, and then perforate the thin plate e as nearly as possible to what you suppose to have been ginal seat of the disease.

t instrument is to be employed in making the perforation ephine? That is quite unnecessary. Nothing is better pair of sharp-pointed strong scissors; apply them to the n their closed state, using them as a chisel, and they will

easily penetrate it, and go into the a
to press on the scissors, giving then
motion, and you will easily break awa
If the opening be not sufficient, a b
afterwards be used to enlarge it; whic
to make it of almost any dimensions.
I performed the operation the other da
finger easily penetrated through the ope
cavity of the antrum. The opening bei
introduce a probe or your little finger, to a
dead bone. As the soft parts contract, it
for the patient to wear a plug in the orific
closed. A piece of ivory or box-wood answ
well. The plug should be conical in shape,
slip into the cavity of the antrum. It should
daily, and a little tepid water injected into the
out. This practice may be continued as long a
pus continues, or as long as you have reason to s
is any dead bone to come away.

In some cases the patient recovers perfectly afte
and in others not. A lady consulted me, who had
of abscess in the antrum for many years, being oth
ill health, and there was the greatest reason to att
health in part to the putrid matter collected in the an
through the nostril into the fauces, and being swall
sleep. There was a carious tooth, which was extracted,
made a wide opening from the bottom of the alveol
antrum, and let out a good deal of pus. A plug was k
opening, and the antrum washed out night and morn
fluid used in the injection flowing into the nostril. No de
ever came away, nor was any ever felt by the probe; but,
theless, the suppurative discharge continued. The patient,
few years afterwards, died of disease of the lungs, and I h
that to the day of her death the discharge of pus from the an
had not ceased. Where there is extensive dead bone which

SPASM OF THE TRACHEA.

A boy 12 or 13 years of age had had several attacks of difficulty of breathing, relieved chiefly by opiates. He had one of these attacks more severe than the former ones, and soon after he died.

On dissection, that part of the trachea which is situated in the neck was found of an unusually small size, and this appeared to arise from the muscular fibres at the posterior part being in a state of preternatural and morbid contraction. That part of the trachea which is within the thorax was not affected in the same manner, but was of the ordinary size. The lungs were somewhat loaded with blood, and the pericardium and pleuræ contained more water than is ordinarily met with. There was no inflammation in any of the parts. There was a small opening big enough to admit a crow quill in the place of the foramen ovale. In other respects the heart and its vessels were natural. The viscera of the abdomen were healthy.

HYSTERIA.

That state of system which is commonly described under the name of Hysteria, may be produced in any one artificially by any causes that tend to repress the powers of the nervous system. The strongest man may become hysterical at the end of a long illness. The convicts in Pentonville prison, who had been well fed, and seemed to be in perfect health, who took exercise daily in the open air, who were kept constantly employed either in manual labour or in some other way, but who, during a period ranging from twelve to eighteen months, had no opportunity of conversing with any one except occasionally with the officials of the prison, and those who superintended the work in which they were engaged, being first removed on board ship on their way to Australia, became the subject of hysterical fits, resembling in all essential circumstances the same fits where they occur in a hysterical girl.

If one of them became affected in this mann the rest followed. On one occasion all escape doubt that if any one of them had been thus a would have been the same as it had been on oth

I remember an instance of a professional man considerable fortune, and gone to reside at a pl purchased in the country, who used to call up me about a local complaint, which was in itself importance, and which was, as I believe, in imaginary; who, having no real cause of uneas theless so hysterical that he could scarcely spea Such cases, however, are to be distinguished cases in which the patient, naturally and inde operation of all external causes, is the subject diathesis.

These cases occur chiefly in the female sex, bu peculiar to them, and it is reasonable to belie explanation of them is that there is some actu organisation of the nervous system. In proof o may be mentioned that such liability of hysteria with what may be called a relaxed or weak condi textures.

There is perhaps hæmorrhage from the lungs from the stomach, evidently depending upon a v small vessels, in consequence of which they giv the contents to escape.

In some there is a relaxed state of the ligame In one case the sternal extremity of the clavicl and out, so as to be nearly, but not completely, c

In another case the head of the femur every no out of its ordinary situation, so as to be distinct

They are attached to the mucous membrane, and so as to fill up the cavity. I suppose that at first they ut little pain, and that the patient has scarcely any of disease; at any rate there are no symptoms by the n of which the surgeon would be able to recognise the of disease in its very early stage. But it is otherwise as se advances. The tumour, growing larger, presses upon r surface of the antrum, and causes its bony parietes to dilated. By-and-by it makes a projection in the cheek, that which I described in the last case, where there was tion of mucus in the antrum. After a time there is another on in the situation of the bony palate—that is, the tumour upon the floor of the antrum, as well as at the sides. nother projection occurs at the inferior part of the orbit; re is another still blocking up the nostril; in fact the becomes distended everywhere, causing an enlargement heek, bringing the bony palate to a level with the grinding elow, and diminishing the cavities of the orbit and nostril. ny substance of the antrum becomes absorbed under the of the tumour; the base of the alveoli is destroyed; the re rendered loose, so that they merely hang in the jaw by nd you can extract them with a pair of forceps, or they t of themselves. The tumour goes on increasing until the will admit of no further distension; ulceration takes nd the malignant growth projects through the ulcerated . Generally it projects, in the first instance, under the A large ulcer is formed there, and the tumour appears it. It then makes its way by ulceration into the mouth bit; sometimes it pushes the eye upwards, and at other rwards, so that it is quite out of its natural place; and in case it occasions blindness. As the disease makes still progess, it forms a large tumour in the mouth, compressing gue, and preventing mastication.

malignant growth having made its way externally, and reed from the pressure of the neighbouring parts, increases

at a still more rapid rate than be
occasional hæmorrhage; and the
these causes, partly by misery and
vation: for now he is unable to m
destructive process of the parts in
there is at last great difficulty in swa
ment, only a small portion of which
the greater part passes out at the aper
know anything more miserable than
who dies from this horrible disease. S
progress; but if you wish for further i
you will find an excellent and very gra
Travers' paper on Malignant Diseases,
volumes of the Medico-Chirurgical Trans

I suppose that it is this disease of wh
conceived that it might be removed by
imagined that it might be got rid of by
might make an opening into the antrum befor
a very large size, turn it out with the fingers,
cautery to the surface from which it grew.
case recorded by Desault, where this operati
and it is spoken of as being successful. But if
he gives the history of the case no later than
the performance of the operation; and you
malignant disease may appear to be cured for a
yet return. The circumstance of the patient
tolerably well three months after an operation of
means proves that it produced a permanent cure.

I did attempt to destroy a tumour of this kind f
following manner: It was in the early stage of
growth; but the cheek bulged out over the dilated
the bone of the antrum was absorbed. With a comm
cut out a large portion of the membrane, which now
only boundary of the antrum. I then found a large
pended, as it were, in the antrum, appearing to grow fr

time she fell into a state of imperfect stupor, from which, however, she could be roused. On some effort being made to move her, she fell into a state of total insensibility, which continued for some time, and from which she recovered, with twitches of the muscles of the face and hysterical sobbing. Occasionally she was affected with sickness and vomiting; the pulse became frequent and gradually weaker, until at last it was scarcely perceptible, and she died on the 12th of December.

On dissection, the nerves of the upper extremity, which had been the seat of pain, were carefully examined, but were found to present no morbid appearance of any kind. The brain and its membranes were also apparently in a healthy state.

In the abdomen, two dark spots were observed in the upper part of the small intestine; and on slitting the intestine open, it was found that each of these represented an ulcer extending nearly round the bowel. The bladder was of a large size, as if it had been for a long time unusually dilated; it was of a very dark colour, almost black, and there were very little vestiges of its natural structure; the muscular fibres being much wasted, and the inner membrane consisting of only a very thin film, which was readily separated from the parts below. There were no other morbid appearances.

DISCHARGE FROM THE NOSTRIL.

A gentleman consulted me, who had suffered from pain in the forehead, followed by an immense discharge of solid caseous substance from one nostril. After this discharge had taken place, the pain in the forehead was always completely relieved.

I removed a large quantity of this matter with the forceps. The nostril seemed to be completely filled with it.

I have seen one similar case, in which I completely relieved the patient by removing this substance, but I have heard nothing of the patient since.

A lady, 40 years of age, complained o harge of a

thin mucus from the left nostril. When she stooped h forward, a clear fluid escaped in a rapid succession of dro she said that, having sometimes collected what came away, calculated that the discharge has been at the rate of a pin hours. She was especially tormented by the discharge s when it completely wetted her pillow. There was no pain difficulty of breathing through the nostril, nor is anyth usual perceptible on inspection. Her health was otherwi and her menstruation was regular.

She had resided chiefly in Jamaica.

The complaint first attacked her seventeen years ago. days it had reached its height, and continued unabated for months, then suddenly left her. She remained free fro fourteen years, after which it returned, and has contin altered ever since, i.e. for a year and a half. I prescribed sulphate of zinc, to be taken in a pill three times daily, to be gradually increased until she took six grains daily, following lotion to be used three times daily with a syrin

℞ Zinci Sulphatis, ℈j.
Tinct. Gallarum, ʒj.
Aquæ Rosæ, ℥viij. M. Fiat lotio.

In about two days after she began the use of these r the discharge was somewhat lessened.

The improvement continued, and since the 25th of th the discharge had ceased altogether. I advised her to the use of the same remedies for another month.

I have since seen some other cases of the same kind.

I have seen several cases of children who laboured purulent discharge from one nostril with an offensive od symptoms exactly resembling those which arise in oth from disease in the cells of the ethmoid bone, but in w event proved that they were the consequence of some forei impacted in the upper part of the nostril. In one case i the symptoms had existed for an entire year, they subsidec removal of a tamarind stone which had been lodged betw

need them, but they may be of use to younger the profession. The way which I have pointed out is ne in which you will be enabled to succeed in your and to practise it with comfort to yourselves and to the public. In fact, I think that very few will get ce at all who do not pursue the study of the profession ctical manner which I have suggested. I offer these ith an entire feeling of friendship, and with the most sh that you may be successful in your profession and do this school.*

troduction of anæsthetics into practice was subsequent to the hese lectures.

nin Brodie was in the habit of having his patients placed under the chloroform in all serious operations, and in those of a very painful t he was averse to its being indiscriminately administered on trifling

himself underwent the operation of Iridectomy, the operation was hilst he was under the influence of chloroform. But when the operations—the extraction of a cataract and the formation of an il—were performed, chloroform was not used.—C. H.

veins of the liver. (The coagulum found in the heart an in this instance differed entirely from that usually met was opaque, of a straw colour, of the consistence of cus having altogether very nearly the appearance of thick p in a scrofulous abscess.)

HÆMORRHAGIC DIATHESIS.

About the year 1819 or '20, I was consulted by a gent middle age, who laboured under great irritation of the attended with occasional profuse discharges of blood. previously been under the care of the late Mr. John Pear told him that he suspected him to labour under fungus ha of the bladder.

I believe that it was by Mr. Pearson's direction that been cupped in the perineum; and this remarkable circu occurred—that the scarifications burst out bleeding occa afterwards discharging each time some ounces of bloo continued for some weeks: I then found that not only hin some other members of his family laboured under what called an hæmorrhagic diathesis, bleeding profusely on v occasions. As the symptoms under which he laboure sponded with those of stone in the bladder, I examined th and found that such was the actual nature of his comp explained to the patient that there was only one remed complaint, that being the operation for lithotomy. He a 'Assuredly, if I submit to it I shall bleed to death;' and I this to be so probable a result, that I did not feel ju urging him to submit to the operation. He afterwards c Sir Astley Cooper, who, probably not having been made ac with all the circumstances, performed the operation. A hæmorrhage followed, which it was found impossible t and the patient died.

I have since learned the following particulars of this man's family:—One sister of this family had an alarming

›n, not of one part, but of the whole of the injured

be that the symptoms of concussion in a great degree
ıd that those of inflammation are not distinctly developed
r some interval of time, perhaps of one or two days.
the majority of cases it is otherwise. The symptoms
ɜ attribute to concussion, gradually alter to those of in-
on, so that it is difficult to say where the symptoms of the
›r end, and of the other begin.
nmation of the brain under these circumstances is marked
ium, sometimes of a low kind, and at other times such as
er the patient violent and unmanageable. There is pain
head, a hot skin, a flushed countenance, and an increased
cy of the pulse. In this last respect, however, there are
xceptions to the general rule, and the pulse in the first
›, instead of being more frequent than natural, is actually
rably reduced below the ordinary standard.
nember in one instance, I was consulted respecting a
ıan who had otherwise well-marked symptoms of inflam-
following concussion of the brain, in whom the pulse did
ɜed 40 or 45 in the minute. On his being bled it rose, if
›llection be accurate, for I have no notes of the case, to
s of 70; the blood that was drawn exhibiting well-marked
inflammation. If the inflammation continues it may end
formation of matter on the surface of the arachnoid, with
of serum into the ventricles, and in the subarachnoid
›r it may be that the patient may be worn out by nervous
ent before there is time for any such effusion to have taken

the most part, however, in the case of concussion of the
omplicated with other injury, and under judicious treat-
here is no such unfavourable result.
ıe course of a few days the more urgent symptoms have
d, the brain may remain in a very susceptible state for
me, perhaps for many months afterwards, but eventually
›very is complete.

The treatment of such cases m
perfect repose, food taken in its
part in a liquid form, purgatives
according to circumstances, and t
from the arm or by cupping. On t
some further observations to offer.
as in politics—there is a certain nu
extreme opinions. Formerly there
what is commonly called the antiphlog
system of blood-letting to a most un
member a very eminent practitioner and
department of medical science, who o
speaking of taking away blood not by ou
present there are those who go into the
to the verge of almost renouncing blood-l

Now I do not hesitate to say that to a
the cases of which I am now speaking, woul
proceeding, and that there are not a few ca
abstraction of blood is necessary for the
patient's life. At the same time I do not s
exceptions to the rule, and that in such a ca
drinker it may not be necessary to have reco
method of treatment.

Neither do I deny that there are other cases i
remedies may be administered with advantage,
flammation in subjection and diminishing, but n
the necessity of blood-letting.

There is another order of cases in which the e
are apparently of trifling importance, but in whic
danger is great. These are the cases which h
graphically described by Mr. Pott in his treatise o
the head. The patient has received a severe blow
of the head, he may have been stunned, but may hav
from this first effect of the injury.
He is probably in a state which excites but little anxi

the fact above mentioned. According to my experience, there are diseases in which the operation is most highly beneficial; while I know that there are many persons of considerable experience who hold it to be of no efficacy whatever.

This difference of opinion is to be attributed, as I apprehend, partly to the circumstance that myself and many others have been in the habit of prescribing the use of the remedy in a class of diseases different from that in which it has been used by those who have arrived at an opposite conclusion,—partly to the sarsaparilla being frequently administered in too small a dose, or being improperly prepared.

The cases in which the beneficial effects of this remedy are most manifest are—1st, those of eruptions and ulcers of the skin, and those which had their origin in the poison of syphilis, but in which the disease had been aggravated by the injudicious administration of mercury, the ill effects of the mercury being further manifested by the loss of flesh and depression of the bodily powers;—2ndly, those of severe pains of the limbs, and what is called chronic periostitis.

In many of these last-mentioned cases the diseases have been originally syphilitic, but in some of them it is otherwise, the patient never having either suffered from this disease, nor having been subjected to the use of mercury for any other.

Where ulcers and eruptions in an ill-managed syphilitic case occur, it may be that the symptoms will be permanently relieved by a long-continued course of sarsaparilla. At the same time, it more frequently happens that there is a recurrence of them after a certain lapse of time, when the sarsaparilla may be again exhibited with advantage: in other cases, again, after one or two courses of sarsaparilla, there may be a recurrence of well-marked syphilitic symptoms, which the sarsaparilla is unequal to eradicate, and for which, in the now improved state of the general health, mercury may be exhibited without any of those ill consequences which it had produced previously.

result. The failure of the operation wa
plained by the fact that on examination a
that suppuration had been established un
well as over it, and generally to a greater
than in the latter situation.

That there may be some rare cases in wh
be limited to the space between the bone and
which the timely application of the trephine m
life, is certainly not impossible, and that som
have occurred in the very extensive practice wi
in one of the largest hospitals in London canno
be doubted. But I am convinced that they must
occurrence. It may be right to give the patient
chance of a cure which the perforation of the bo
him. There can be no objection to the operation,
it is not painful and cannot make things worse th
before. Still the great object of surgical treatment
not so much to give exit to a collection of pus already
but to prevent suppuration taking place. The case
admitting of what is called active treatment. Some
abstraction of blood in the beginning may be proper, bu
no reason to believe that the repetition of blood-letting
useful, while it is very probable that it may be actually in

The required treatment is, indeed, very simple, yet it
very efficient. The patient after any severe contusion of the
where such results as those which I have described may be a
hended, should give up his usual occupations, avoiding al
citement of body and mind, living on a very plain diet, and ta
care that the bowels are properly regulated.

The longer I live the more I am satisfied of the great advan
to be derived in cases of disease from keeping the diseased ag
in a state of complete repose, and the rule applies to injuries
the brain as much as it does to diseases of the joints. I cann
doubt that many persons have died from the consequences of
blow on the head, whose lives would have been preserved if the

I prescribed for him a course of sarsaparilla; within a week the pain was completely relieved, and I am not aware that there was any recurrence of it.

In this last case, the symptoms had followed a primary venereal sore. There had been no other secondary symptoms, and the primary sore had healed without mercury, and none had ever been used afterwards.

I apprehend that the principal reason why some practitioners of eminence have been sceptical as to the good to be derived from the use of this remedy is, that they have seen it prescribed in another class of cases, and not in those to which it is especially applicable. Another reason, however, is either that they have not prescribed it in sufficiently large doses, or that the preparation of it has been imperfect.

The average quantity required for an adult man should be not less than ℥xvi. of the decoction with ʒij. of the fluid extract dissolved in it, taken daily. If any of the concentrated preparations, the fluid extract or the syrup, be used, it should be in the same proportion.

If the stomach does not bear so large a quantity of the above-mentioned preparations, a cold infusion in lime-water may be exhibited instead; two ounces and a half of the sarsaparilla cut and bruised being infused for sixteen or twenty hours in lime-water, the clear liquor being then poured off, and the whole quantity drunk in the course of the day. Where the stomach will bear it, the powder of sarsaparilla is sufficiently efficacious, a full tea-spoonful being taken in some hot milk two or three times a day. In preparing the decoction of sarsaparilla, the best Jamaica sarsaparilla should be preferred; the root should be infused in cold water for some hours before it is boiled. The taking the sarsaparilla out to bruise it in the middle of the boiling process, as recommended in the Pharmacopeia, is certainly not required: if it has any effect, it is probably injurious, by adding to the quantity of extractive matter, which the stomach does not easily digest.

These are what in the modern nomen
be described as cases of pyæmia. The r
that the secondary diseases are the result
through the veins into the circulation.

I shall take this opportunity of observing
much inclined to doubt the correctness of th
cases to which I have just adverted, ther
absorption of pus from the dura mater, as no
surface. In one instance there being perito
there was an effusion, not of pus, but of lymph

I was consulted concerning a little boy who ha
vascular nævus, situated on one side of the neck
of the lower jaw. As the nævus appeared to b
size, it seemed desirable that something should
removal, and accordingly I passed three setons, each
five threads of silk, transversely through it, the ends
being left projecting, as I thought, sufficiently beyon
tures. The result was, however, that in consequence
of the parts having become more swollen from inflamm
I had expected, when I visited the patient on the follo
the setons had altogether disappeared, the ends being co
drawn in by the integuments. On the following day th
considerable disturbance of the general system, the patie
a rigor, and the knee of the opposite side was swollen
disturbance of the system continued, and the swelling of the
increased. Suppuration took place in the substance of the
an abscess presented itself, which I opened, giving exit to a
siderable quantity of matter, the setons being discharged wit
The disturbance of the general system immediately subsided, a
the swelling of the knee, which evidently depended on a collect
of fluid, disappeared. We cannot suppose that in this case the
was an abscess in the knee, or that the fluid in the joint was
other than the usual serous effusion consequent on inflammatio
of the synovial membrane, and we are therefore justified in the
conclusion that the secondary inflammation did not depend on the
absorption of pus.

ng case affords another example of the same kind. ' inflammation having shown itself before there was ıration to be established in the original seat of the

ıtient on whom I performed an operation before I ›ffice of surgeon to St. George's Hospital, was the ;uinal aneurism. I tied a ligature round the ex- 'tery in the usual manner. On the following day, : from London, he was visited by Mr. Cutler, who ınt at the hospital. Mr. Cutler found him suffering ıd tenderness, extending from the wound on the attended with great feverish excitement of the n.

l that blood should be taken from the arm, and the n exhibited the usual appearances indicating inflam- the following day I visited the patient myself, and flammation rather aggravated than abated; there same time a severe pain in the shoulder of the I directed more blood to be abstracted, the blood enting the same character as before. On the third ; of the operation, there was still no abatement of ıl or the constitutional symptoms. I now learnt for that the man had been of very irregular habits, and .er, and in consequence I thought it right to alter reatment, giving him a moderate quantity of wine, way no more blood. From this time the patient d. The pain and tension of the abdomen subsided, came away about the usual period, and the case ccessfully. The pain in the shoulder subsided also, ıre gradually than that of the abdomen.

› be supposed that in this case there had been any s in the shoulder-joint, yet we can scarcely doubt eposit would have taken place if the inflammation l. I do not venture to give a positive opinion on a . certainly deserves some further investigation, nor

oneum bore marks of inflammation, and in some parts
n effusion of serum with lymph on its surface.

DISEASES OF JOINTS.

reatise on 'Disease of the Joints,' I have endeavoured
the various affections to which these organs are liable,
n the symptoms and other circumstances by which the
iseases may be distinguished in the living person, and
ment which may be employed for their relief.

geon of much experience will, as a general rule, be able
a pretty accurate diagnosis of these diseases, but even to
nen a case is presented to him of long standing, of the
rogress of which he may probably obtain but an imperfect
, an exact diagnosis will be difficult, and in some cases
ible. Of course to a younger and less experienced prac-
r the difficulty will be greater. It is not to be supposed,
er, that in these, or indeed in any other cases, an exact
sis is always necessary as the foundation of a successful
ent.

w general rules may be laid down which will of themselves
sufficient guide for the surgeon in a great majority of in-
s. This observation, indeed, applies to the great majority
er diseases as well as those of the joints, but the observations
I have now to offer are intended to apply especially to the

re are a few cases in which there is an increased secretion
ovia producing a chronic swelling of a joint without even a
e of inflammation in the secreting membrane or elsewhere,
n which friction of the joint carefully conducted may be
in causing the absorption of the fluid which it contains.
joint which has been the seat of inflammation, but which
ns more or less stiff after all inflammation has subsided,
n and motion of the joint, or what is called shampooing, may
eful in promoting the absorption of the effused lymph on

In 1840, I was requested to see a gentleman's servant v
a tumour on the forehead very similar to those described
It was about 1½ inch in diameter, and produced an e
of the skin of one-third of an inch, or thereabout. It e
contained fluid; was situated on the forehead, about an in
the left supercilium. He said that it gave no pain, and oc
no inconvenience except what belonged to its appear
punctured it with a needle, and let out about ʒj. of o
Then the swelling nearly subsided, and the finger, prese
skin, seemed to descend into an indentation of the bo
inconvenience followed the operation.

In the beginning of the year 1853, I again saw this
The tumour was a good deal larger. I again puncture
drew off about ʒij. of oily fluid.

In 1847, a young man consulted me concerning a
tumour situated above and between the internal angular
of the frontal bone. It was congenital, of the size of an
nutmeg. I punctured it with a needle, and about ʒij
fluid escaped. I did not see this patient again.

In the beginning of the year 1852, I was consulted by
man, about 18 years of age, concerning a tumour of the
resembling those above mentioned. It was congenital
no pain, but was considered as a disfigurement. I pun
with a flat needle, and squeezed out about ʒss. of subst
yellow colour, which at first seemed like a mass of thick
examination, however, it proved to be an oily substanc
when melted on paper, was absorbed like grease. T
seemed as if dipped in oil. When the tumour was thus
an indentation was perceived in the cranium, as if the
aperture in the external table.*

* Mr. Prescott Hewett, when Professor of Anatomy at the Roy
of Surgeons, described in his lectures cases similar to those here rela

UNNATURAL DEVELOPMENT OF THE THYMUS GLAND.

In October 1837, Sir Henry Holland and myself were requested to see a little girl, 7 years of age, who was subject to attacks, which occurred chiefly during the night, of great difficulty of respiration, in which she appeared to be sometimes on the point of being suffocated. There were none of the usual signs of disease of the lungs or heart, and we could not form an exact diagnosis of the case. There was a manifest fulness or enlargement of the lower part of the neck, which had been attributed to an enlargement of the lymphatic glands above the sternum. However, we satisfied ourselves that this was a result of a turgid state of the veins, and we were therefore led to believe that there was something within the thorax preventing the due return of blood to the heart. Leeches were applied several times; then a blister and other remedies were employed without advantage. The symptoms increased, and on the 17th of October she was seized with a more severe attack of dyspnœa than any of the former ones, in which she died.

On inspecting the body and elevating the sternum, a large tumour presented itself, occupying the whole anterior mediastinum, of an irregular form; composed partly of solid substance, partly of cells. On cutting into it, from six to eight ounces of fluid escaped, resembling chyle in appearance, but not coagulated. The solid tumour, when the fluid had escaped, was of the size of a pretty large orange, but of a different form. It was of a whitish grey colour, and was manifestly the thymus gland enormously developed.

ABSCESS IN THE CALF OF THE LEG CURED BY REST.

I am led to record the following case, because an important principle of surgical practice is involved in the treatment which was pursued and proved successful.

The principle referred to is that of keeping the part which is the seat of disease in a state of perfect rest. It is by acting on this

a piece of oil silk to prevent it being
discharge.

In private practice, where this treatm
out, the success of it is such that it will
the amputation or excision of the diseas
probably not once in a hundred cases.

If the case is attended to at an early peri
joint is preserved. If abscess has already
the usual and indeed the most desirable m
less danger of the recurrence of the disease, a
the limb has been kept in a proper position, i
calamity, at least not to be put in competiti
the limb; but with this view, as I have just m
the whole course of the disease attention sho
position of the limb. In the case of a diseased k
the leg should be kept nearly, but not absolutely, i
thigh, as otherwise it would be unfit for walking.
diseased elbow, the forearm should be kept best
diseased hip, the thigh should be kept maintained
the trunk, and the leg in a line with the thigh, as if
ankylosed with the limb in this position, the patien
very tolerably well, whereas if the joint be ankylos
thigh at an angle to the trunk, the patient is a cripple for
his life. In this last case a very simple method may be
to remove this inconvenient flexion of the thigh. A leath
fitted to the pelvis and including the thigh, should exte
middle of the calf of the leg; it should be applied with the
thigh in the position that I have described, and it then wi
pletely prevent the flexion of the leg upon the thigh, an
obvious that this is of itself sufficient to prevent the flexio
thigh on the pelvis.

As I have said, in the cases where children are affected
scrofulous disease, and the general health of the patient re
tolerably well maintained, even when the disease has made
siderable progress, the chances are very much in favour of
patient's recovery. The disease occurs much more rarely, be

dults. In them the disease is much more rare than
, but when it does occur it is much more difficult
gress. As a general rule, when in an adult abscess
a joint, it is not probable that the joint can be
rved. Still the principle of the treatment to be
e same in all cases, and the rules which I have
case of children are equally applicable in that of

ther class of cases of much less extent than that
ust described, and having a different pathological
ained by dissection, but which it is often difficult
the living body. In these cases there is not that
ancellous structure of the bones of which I have
nd the first pathological change ascertained by
nerally an absorption or what may be called an
he articular cartilages. I do not mean to say,
e disease begins in the cartilages themselves, and
ed to believe that the first change is in the surface
which the cartilages are connected; however that
eration of the cartilage often goes on to a consider-
out the formation of abscess; ultimately, however,
kes place, the bone itself becomes ulcerated or
ater or less extent, and the pus becomes infiltrated
ed surface, giving a dark and sometimes almost a
e to the cancellous structure.

the disease is met with chiefly in adults. The
hich it is marked are very similar to those which
ence of the scrofulous disease; in fact, the only
the former is to be distinguished from the latter
s a greater amount of pain in the first instance,
of what is regarded as a scrofulous aspect and
toms generally.

s being so uncertain, it is fortunate that there is
erence in the treatment required. When there is
the first instance, the patient may perhaps be

disease may be the result of gout in the system, as the gouty sediment in the urine, and the presence of symptoms.

cases the inflammation may depend on syphilis, in be the result of the use of mercury. A singular form ıse occurs in connection with gonorrhœa, and there is which the name of rheumatic gout is commonly applied. ıtter will require a separate consideration presently.

flammation may be acute, attended with intense pain, ion of the joint from the effusion of fluid into the cavity, e constitutional disturbance; or it may be of a chronic h only a moderate degree or perhaps a very slight degree of netimes not sufficient to prevent the patient attending to l occupations. The rules of treatment, notwithstanding the of forms under which the disease may exist, are sufficiently In cases of acute inflammation, it may be necessary nes to take blood from the arm, while at other times the bstraction of blood by leeches or cupping, will be sufficient. ives, saline or antimonial medicines, and what is commonly the antiphlogistic treatment, being employed at the same In gouty cases, after the free evacuation of the bowels, the of colchicum may be given with advantage.

is, however, is a two-edged weapon, and should be cautiously nistered in very moderate doses. In some instances, which d generally be classed under the name of rheumatic, mercu- remedies, such as calomel combined with opium, may be inistered with great advantage.

is desirable that the system should be placed in a moderate ee under the influence of the mercury, and a perseverance in treatment is rarely required for more than a few days. In hronic form of the disease, the abstraction of blood even by application of leeches is rarely required, but great benefit is derived from the application of blisters and stimulating nents. In all cases it is necessary that the medical attendant ld keep in view the peculiar condition of the system in which

admit of the following explanation. While the patient remain entirely recumbent on his back, the weight of the hernia w always acting in a direction contrary to that in which it was acti when the patient was sitting, walking, or standing; and the te dency of it must therefore have been not to cause the tumour descend lower into the scrotum, but rather by slow degrees draw it back into the abdomen. It occurred to me that ot cases of irreducible hernia might admit of being reduced in same manner, and accordingly I suggested to a gentleman had long laboured under an irreducible omental hernia in groin, that he should make the experiment by remaining stantly on a sofa. He submitted to do so, and in the course few weeks the hernia was reduced. I have employed the s treatment with success in some other cases, but have prese notes of only one of them.

The circumstances of it were as follows. A gentleman years of age laboured under an omental irreducible hernia of groin. He said that the testicle on that side had not descen until he was 17 years of age, and that the hernia had immedia followed, and had never been reduced. The omentum seeme some parts to be hard and knotted, but whether it was irreduc from this cause or from adhesion, I could not determine; t was no evidence of the presence of intestine. I advised gentleman to make the experiment of lying in the supine post After a few days, the omentum could be made to pass up thr the abdominal ring, but not into the abdominal cavity, so th made a protuberance behind the tendon of the external obl muscle. At this period he was recommended to consult the Mr. Vance, who had been formerly surgeon to the Haslar N Hospital. Mr. Vance having examined the part carefully, ca the conclusion that the complete reduction of the hernia was possible, and was proceeding to give his reasons for this opi when the patient said, 'Now I would like to show you how when I stand up.' Accordingly he rose from his couch for purpose, and in the act of doing so the hernia returned int

abdomen. I saw this patient many times afterwards; he wore a truss with perfect comfort, and which fully answered the purpose intended.

The same treatment might, I doubt not, with advantage be applied to cases of umbilical hernia in women who have borne children. And in these cases, the process might probably be expedited by the application of strips of adhesive plaster over the hernia, so as to subject it to a graduated pressure.

I take this opportunity of observing, that I have never found any one of the trusses contrived for the cases of umbilical hernia to answer any useful purpose, while another and much more simple method does all that is required. The method alluded to is as follows. An ivory counter, or a circular piece of gutta percha, is inclosed between two pieces of thick and soft leather, spread with adhesive plaster, the diameter of the leather being two or three times that of the counter; the leather thus prepared, is to be placed on the hernia; then one, two, or three strips (according to the size of the hernia) of linen, spread with adhesive plaster, are to be applied transversely over the leather, and of course over the hernia; in the majority of cases the plaster should be sufficiently long to include at least half of the circumference of the abdomen. It should be applied when the patient is lying on her sofa flat on her back, and drawn tight enough to make as much pressure on the hernia as can be made in this manner. The plaster will answer the purpose more effectually if it contains a larger proportion of resin than usual, as it makes it more adhesive.

A broad belt or bandage sufficiently large to include the whole of the abdomen may be applied over the plaster, the object of this being merely to prevent the plaster from being disturbed; the plaster may be renewed from time to time according to circumstances. I have known women in whom the hernia has been treated in this manner, continue for many years without experiencing the smallest inconvenience, either from the hernia or from the treatment.

structure is not exposed, a layer of l
posited upon it.

In extreme cases there is scarcely a
escapes the disease: it shows itself eve
of which appear to be enlarged, formi
name of nodosities.

This disease rarely shows itself until a
life; there is none more intractable.

Alterative courses of colchicum, such as
are sometimes useful, but only to a limite
system is that which is generally regarded
alkalis. The exhibition of soda, however,
the combination of lithic acid with soda
liable to be deposited in the form of chalk st
of potash is very easy of solution.

The disease which I have just now describe
not only unabated, but gradually making prog
ultimately causing the patient to be completel
say that we are scarcely to expect that the dis
even in its early stage, and that we must be conte
tigate the inconvenience which it produces and re

There are some circumstances peculiarly affecti
which seem to require some special notice, an
therefore reserved for separate consideration.

In the common scrofulous disease of the hip-join
other cases in which the cartilages become ulcerated,
that the head of the femur becoming extensively
ulceration, and the bony margin of the acetal
partially destroyed, there is nothing to prevent the
drawn upwards by the action of the muscles. In c
the limb is shortened, and presents very much the
pearance as in the case of fractured neck of the fem
other cases, before there has been time for the head of
to be destroyed by ulceration, the cavity of the acetabulu
become filled up by coagulated lymph, and what is ca

ent of the joint having become destroyed by ulceration, the femur is thrust outward beyond the margin of the , and there being nothing then to prevent it, the w the bone upward, so that it is lodged on the dorsum n; there is, in fact, a complete dislocation, marked by signs of dislocation upward and backward, the limb rtened, the thigh bent forward, and the toes turned The surgeon should always bear in mind the probability dislocation taking place; 1st, because the effect is to patient a cripple for life; and 2ndly, because much may prevent it.

ad of the femur is much more likely to escape from the m when the thigh is bent forward than when it has been in a line with the body; and as I have already explained, bject is to be obtained by the application of a proper the beginning.

nation of the synovial membrane of the hip is of much ent occurrence than inflammation of the synovial mem- the knee, or ankle, or elbow, a fact which may be by the great mass of muscle within which the hip-joint d, and which protects it in some degree from the external from sudden changes of temperature. When, however, affected in this manner the disease is marked by a very amount of pain, often attended by very great constitu- turbance. This is explained by the circumstance of the membrane being everywhere covered by the strong ligament. The pain in these cases is referred to the the thigh below the groin.

capsular ligament gradually gives way, the head of the thrust outward, the round ligament of the joint is by ulceration, and ultimately the head of the femur, as ases before mentioned, is dislocated in the direction and outwards. This does not happen without a great f previous suffering, both local and constitutional, which ieved until the dislocation has taken place.

The mischief here is irretrievab
shortened during the rest of the pa
The late Mr. Earle and myself o
kind after the inflammation subsid
by the usual mechanical means, but
The result of the cases of diseased
hospital and private practice. A
affluent or well-off classes, the dise
to at an early period, and the attentio
sufficient length of time, the cases of
much over the unsuccessful cases, that
the diseased joint is of rare occurrenc
among those who seek relief in hospit
obtains proper attention at the beginning.
When the patient is admitted into th
ment probably takes place, but after a c
either from the air of the hospital disagre
some other reason, the patient generally leav
disease is then again neglected, and ultimatel
joints so disorganised, as to be probably b
remedies. Children may, and sometimes do,
the joint is in a state of suppuration. It n
recovery takes place in such cases in the adult.
To this rule there are indeed only a few e
these is where suppuration in a joint is the resul
of the synovial membrane, the bones and cartil
been primarily affected. Here the proper treatme
free opening into the joint, so that the pus conta
escape without any pressure or other manipulation
for the purpose. If the first opening be insufficient,
be made wherever the abscess presents itself afterwa
being at the same time supported by splints made of
or gutta-percha, in a state of complete immobility.
such cases it is not to be expected that there can be
cure than by ankylosis. The greater chance of recover

d with other cases of abscess in the joint, is explained
that the bone is in a healthy condition. There is a
ıspect of recovery where a diseased joint is in an upper
:han where it is in a lower extremity, in consequence,
presumed, of the greater proxmity to the vital organs,
ınd brain; especially the former.

y takes place more frequently in the joints of the toes
, than in the larger articulations, but only for this reason,
their smaller size the patient's constitution does not
ıe same proportion, and therefore the surgeon has more
disposal to do what is required; something here de-
he toe or finger that is affected. The loss of the thumb
ger is a much greater calamity than that of the little
therefore a greater effort may be made to preserve the
n the latter.

of the great toe is a very great calamity also, and may
eserved under what appears to be very extreme circum-

ghter of a medical practitioner laboured under what I
have been a scrofulous disease of the joint of the meta-
with the big toe. There was extensive suppuration,
ling of the neighbouring parts, the great toe itself seemed
ree times its natural size. But the patient's health in
fered, and there was little local pain. I applied a stiff
int to the sole of the foot, including the whole from the
e points of the toes, and lined with oil silk. With
ved the patient to walk about. If my recollection be
was not until after the lapse of two or three years
ation took place of a piece of bone forming part of
ıting surface. After this, suppuration ceased, the ab-
led, the swelling by degrees entirely subsided, and the
overed with a perfectly useful great toe, with which she
and dance as well as her sisters. I have seen many
seased toes and fingers recovering under this simple

wound made by the operation very soon heal
order of symptoms showed themselves, whic
counted for except by attributing them to the
the purulent discharge from the abscess. Un
the patient's life seemed to be in considera
the aid of careful nourishment, and due su
covered.

INOCULATION FROM POISONED MA

The following cases are remarkable from th
the inoculative poison having been at once
finger to which it had been applied, to the
nerves.

On the 19th of February 1825, a surgeon's p
Hospital punctured his finger in examining th
who was supposed to have died of slow perit
Immediately afterwards he used the precauti
sucking the finger, and he suffered no inco
finger afterwards. But on the second mornin
he had a rigor, with severe headache, and in
plained of pain in the shoulder on the side of
this time he laboured under constant fever,
the shoulder tendons in the situation of the p
there was general tumefaction of the limb

led rheumatic gout, affecting one knee. The motion produced a crackling sound, which might be heard at ce. But he ultimately recovered from the complaint, ckling disappeared with the other symptoms.

FOREIGN BODIES IN THE ŒSOPHAGUS.

year 1806, a poor woman applied to me supposing that swallowed a piece of bone, which had stopped in the us. Probangs and bougies had been previously employed the bone being detected, or any good result. She was o swallow, and complained of pain, which she attributed one sticking in her throat. These symptoms continued d on the evening of the day subsequent to that on which ne was swallowed. It appeared to me probable, that the ed piece of bone had passed into the stomach, and accord- instead of making any further attempts with the probang, inistered an opiate glyster. After this she became com- and went to sleep. The next morning she could swallow, n a short time all the symptoms subsided.

May 1808, a poor woman came to London who had swallowed rd lump of meat the night before, which she supposed had k in her throat ever since. Attempts had been made in the try to relieve her by the use of the probang, but without any fit. On her arrival in town she complained of great uneasi- in her throat behind the larynx, as if something was lodged e, which totally prevented her from swallowing even a drop of id. She had frequent retchings, and brought up every now then a transparent fluid from her stomach. During the day made many attempts to swallow, but to no purpose. In the ing she was in a state of great uneasiness and irritation. She directed to go to bed, and an opiate glyster was administered. a after this she became more composed, and went quietly to p. She woke on the following morning, and found she was

er asking the late Sir Astley Cooper what was the s experience in this subject. To which after some n he answered, that he thought he remembered one ich the bougie was useful. The fact is, that the name e of the œsophagus has misled many persons as to the the disease. What is called stricture of the œsophagus t of resemblance to the ordinary stricture of the urethra. orbid alteration of structure of the pharynx and of the rt of the œsophagus for the most part resembling scirrhus. rely it happens that there is an alteration of structure eration of the œsophagus at its cardiac extremity, and cts explain how it is that if the use of bougies has any may be injurious but can scarcely be beneficial.

INVOLUNTARY MOVEMENTS OF LIMBS.

January 1840, a gentleman consulted me about two of his en who laboured under this peculiarity. When one hand rm are moved, the other hand and arm perform involuntarily y the same motions. Thus, when one hand was raised in ng at battledore and shuttlecock, the other rose up with it, it required a painful and constant effort of volition to prevent So in using the right hand to write, the motions were im- d by the left hand. The sympathy is so complete, and the rt to prevent it so difficult, that it was found impossible for n to play on the pianoforte. These children were both girls, five, the other eight years old. There are several other dren in the same family in whom this peculiarity does not t, but it does exist in the father. He can by a painful effort olition counteract it to a certain extent, but not altogether.

HERNIA IN THE FORAMEN OVALE.

Mr. Weatherfield of Henrietta Street, Covent Garden, brought my inspection in the year 1840, a preparation of a hernia ch had been strangulated in the foramen ovale of the pelvis.

About one and a half inch of the
traded through the aperture for t
quite black.

The patient was a female. Mr.
have, in addition to the ordinary symp
suffered from violent pains referred
from painful spasmodic contractions o
I conclude that these spasms were the c
on the obturator nerve, and these corr
have observed to arise in two cases fro
the same situation.

There had been no tumour externally, n
of the case been recognised during the pati

INOCULATION FROM GLANDE

I received the following statement partly
himself, partly from Mr. Gardiner, a medical pra
Walk, Chelsea, by whom the patient was attend

A veterinary surgeon at Chelsea, about two
accidentally inoculated in the right hand with
glandered horse.

Two or three days afterwards he experienced pa
arm, followed by what seemed to be deposits of lym
up the limb like hard cords. In a day or two a
observed similar cords on the lower limb of the same
extended upwards, forming welts as high as the mi
thigh. In the course of three or four days more l
affected with inflammation and swelling of the fauces,
afterwards to the whole of the mouth, and as the patient s
to the salivary glands and also to the face. His situation w
one of great misery. He was unable to speak, could s
little except milk, had scarcely any sleep, and was in a st
painful delirium.

Mr. Gardiner gave him at first one grain of calomel with opi

ıours, afterwards reducing the quantity of calomel, ng it until the inflammation of the throat had sub- t there is good reason to believe that he owed his cure dy. During the time that the affection of the throat lasted, the mucous membrane of the nostrils also cerated, the ulceration extending to the pharynx. ptoms lasted altogether two months.

TUMOURS OF THE RECTUM.

3 I saw a lady more than 80 years of age, who laboured umour of the rectum, which descended through the anus protrude externally whenever the bowels acted.

umour was of the size of a very large double walnut, of gular shape, of a soft brown vascular texture, connected mucous membrane within the sphincter by a neck three- of an inch in diameter. There was sometimes consider- morrhage, and it caused great pain. I passed a strong ligature through the neck of the tumour, and having tied ature on one side and the other on the other side, I l the tumour by cutting through the neck below the . The operation gave very little pain, and in about a ıe remains of the neck of the tumour came away as a

disease appears to be very rare, as these are the only s which have occurred under my observation; and I am ıre that it was ever described in books until I gave some of it in my lectures, published in the 'Medical Gazette,' ars ago.

exactly a similar case many years ago in an old lady, 90 age. The tumour was of the same kind, but much larger. f the tumour below the ligature, and the case did well. elieve that the tumour returned some time afterwards, in ence, I suppose, of a part of it not having been included in ture. However, the patient lived in comfort for some

d in which the cause of the absence of pulse was
d.

n of middle age was under the care of Dr. Watson
olland for symptoms which indicated some kind of
ıse. At the same time he laboured under other
ıich indicated disease of the heart, there being a
bruit perceptible by the ear. By-and-by the pulse
› in the right wrist, while that in the left wrist was
g, and by degres the pulse in the right wrist became
ıperceptible. I was present at the post-mortem

the arachnoid membrane of the brain in a state of
with an effusion of fluid in the ventricles, and of
ymph among the membranes. The pericardium
ee or four ounces of fluid. The heart was flabby.
slightly wasted and reticular appearance of the
ves of the aorta. The surface of the membrane
, auricle of the heart had lost its natural smoothness,
:o the mitral valves was a mass of what appeared like
rine, closely adhering to the surface on which it lay,
ıe structure as if long deposited. It was evidently
; from the coagula formed after death, but it did not
rganised. It was of the size of a small hazel-nut.
ian and axillary artery of the right side there was a
ıss of coagulated fibrine, which did not adhere to the
of the vessel. It bore no resemblance to the coagula
leath, being much more dense and compact, and
ery little of the colouring matter of the blood.

n this case the absence of the pulse is sufficiently
the formation during life of a coagulum in the heart
the reason of such coagulation having taken place
ı matter of speculation.

kable that in this case the patient laboured under
ıse, and it is well known that the effect of some
ə brain is to reduce the frequency of the action of

the heart: in one such instance th
the minute. It is easy to understa
heart's action might favour the coag
during life, but I am not aware that
the frequency of the pulse in the ca
the case related by Dr. Storer the puls
frequent than natural.

I have notes of three other cases in w
the pulse in the upper extremities wa
think it worth while briefly to notice.

A medical man of large practice in th
much overworked, complained of a sense
chest, and at the same time observed that
ceptible in his left upper extremity, from
downwards. He had no other symptoms, a
labour in his profession as usual. A year afterw
the pulse had disappeared in the right upper
his health otherwise was unaffected, and he suff
nience. When I saw him four years after, no pulse
in any part of either upper extremity.

I was consulted in March 1840 by a married la
under 30 years of age, suffering from pains and dim
sense of touch, and of muscular power in the left upp
When I saw her the whole arm was colder than the o
pulse was perceptible in any part of it from the subcl
downwards. It appeared that as much as twelve years
medical attendant used always to feel her pulse above
saying that he could not feel it in the usual situati
circumstance, however, attracted no attention until eig
after, when she began to feel pain from the lower part of t
down to the fingers. Soon after this it was discovered th
pulse was imperceptible at the elbow. In 1841, I heard th
patient had for nine months been free from pain, and suffere
kind of inconvenience. There was still no perceptible pulse in
left arm.

r case, in which the patient was attended by Sir Henry myself, there was a complete absence of the pulse in f the left upper extremity, attended with considerable e limb from the shoulder downwards. The patient o be otherwise in good health. I heard of this patient d some years afterwards of an aneurism, as I understood, ta: I was not able to learn any other particulars.

SLOW PULSE.

ly 1840 I was consulted, together with Dr. Foley, by an 91 years of age, labouring under mortification of the toes, had begun a few weeks before. Her pulse was only thirty- the minute. Dr. Foley said that it had never been more t during the last ten years in which he had known her, r relations said that they believed it to have been always the She had enjoyed excellent health, the complaint for which consulted being the first illness which she had had since 'oley had been acquainted with her.

December 1841, I saw a young man about 21 years of age, had a pulse of forty beats in the minute, and who had always in perfect health.

VASCULAR NÆVUS OF THE PAROTID GLAND.

A child of 4 months old, who had been under the care of Mr. ay of Sittingbourne, was sent up to London to see Sir A. Cooper d myself, having an enormous vascular nævus in the situation f the left parotid gland, another of a smaller size on the lower p, and several on the right side of the forehead. Sir Astley ooper and myself regarded the case as being irremediable and opeless. Subsequently, however, I received the following statement from Mr. Ray:—

'The child's health continued to be good. At about 7 months it ut its first tooth, and from that time all the tumours began to iminish spontaneously. At present the child is 18 months old.

The large nævus near the parotid gl
those on the head have disappeared a
these morbid growths is a little th
patient is in fine health.' I have seen
vascular tumours of the same kind
These cases must be regarded, howe
general rule, and it would undoubtedly
the chance of such a natural cure in an
can be safely removed.

FISTULOUS COMMUNICATION BETWEEN THE U

I was consulted by a married lady on a
communication between the urethra, near the
and the vagina, the result of sloughing afte
opening was of considerable size, and the pa
urine with great difficulty, voiding very small qu
and altogether suffering very great inconveniene
I had heard of a similar case in which the la
had been able to afford the patient much relief by
the remaining portion of the membrane of the u
the external meatus and the preternatural opening.
I performed the same operation in the present i
having done so I proceeded further to make an app
the nitrate of silver to the margin of the remaining p
urethra. This application was occasionally repeated
of two or three days. She went into the country, a
four years after I had the opportunity of learning the r
the husband, who informed me that she had derived gre
from the operation, and that she could retain the urine so
for six hours.

LANDS IN A CASE OF MALIGNANT DISEASE, SUBSIDING
FTER THE ORIGINAL DISEASE WAS REMOVED.

ving case seems worthy of being recorded.
sulted by a gentleman who laboured under a disease
penis, apparently carcinoma, with an enlarged gland
n. As the first-mentioned disease was productive of
ess I amputated the penis, though with little expecta-
ultimate cure without removing the diseased gland.
l of the patient afterwards. The enlargement of the
l subsided, and he continued well otherwise.

EATMENT OF ENLARGEMENT OF THE PROSTATE GLAND.

y published lectures I have described the effects of diseased
ment of the prostate gland, which occurs more especially,
t exclusively, in advanced life. It is not, however, my in-
at present to recapitulate what I have said elsewhere, but
llowing observations will relate only to one circumstance
cted with this disease, viz. the treatment of those cases in
there is not merely a partial, but absolute and complete
tion of urine in the bladder.

hen there is that partial retention of urine in the bladder to
ch I have just referred, it rarely happens that there is any
iculty in giving the patient relief by the introduction of a
heter into the bladder; indeed he may generally, even from the
ginning, do this very well for himself. For this purpose he
ould be provided with an elastic gum catheter, prepared, as I
ave stated elsewhere, by having been kept so long on a curved
ron wire, that it may retain the curved form after the wire is
withdrawn. The patient should use it without the wire, the
instrument being sufficiently curved to adapt itself to the course
of the urethra, at the same time that it is so pliable that no harm
can arise from its use.

Where there is a complete and absolute retention of the urine

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e patient may suffer considerable pain referred to the d neck of the bladder; the skin becomes hot and the ent, the patient has a rigor, and perhaps a succession the urine becomes ammoniacal and offensive to the smell, e dry, the belly becomes distended with air, there is not unfrequently an offensive purulent discharge comes the side of the catheter, and as might be expected under cumstances, death ultimately ensues.

case of the kind which I have described, and in which ad been at different times, as I understood, great difficulty ducing the catheter, the following appearances were dis- l on dissection.

prostate was enlarged to two or three times its natural size, sterior portion of it made a sort of ridge of the size of an ad behind the inner orifice of the urethra. There were some tudinal grooves on the surface of the prostate which probably ated the position occupied by a catheter which had lately introduced and allowed to remain in the bladder. At the erior part of the bladder between it and the left vesicular inalis, there was a sloughy abscess, the cavity of which might e contained two or three drachms of fluid. In front of the cess was a small opening extending through the mucous mem- ane, and forming a direct communication between the abscess d the cavity of the bladder.

At the base of the ridge-like projection of the prostate there ere two openings, through each of which a probe or gum catheter ight be passed through the substance of the prostate into the bladder. The communication with the bladder being about an inch behind the prostate.

These false passages were of a round shape, with smooth edges, and evidently of long standing. Through one of them a probe might also be passed into the cavity of the abscess.

My object in entering into the foregoing details is to show how very important a part of surgical treatment the introduction of the catheter in a case of retention of urine from enlarged prostate

really is. A surgeon who never r
forming this operation, where the
may find a difficulty here, and it wo
the most careful and experienced
difficulty may never occur to himself.
limited his field of practice, who m
another be called upon to administer to
this being so, it is the duty of hospital
impress on the minds of their pupils the
this operation an object of their especial s
be as well qualified as possible to do wh
when the occasion occurs.

I do not know whether it is so at the
formerly the instrument makers were in th
what were called prostatic catheters, made of
of a large size, more curved and much long
catheters.

For many years I had such a catheter as this i
but I am not certain that I had occasion to mak
suppose that the great length given to the cathet
supposition of the prostate being so much enlarged t
could not be reached otherwise.

But the fact is, that those enormously enlarged pro
we sometimes see displayed in pathological museums, a
very rare occurrence, and the retention of urine more
is met with in cases in which the prostate gland is only m
enlarged, but with a small or nipple-like projection beh
inner orifice of the urethra.

The catheters which may be used on these occasions a
those made of silver. 2nd. Those made of elastic gum supp
by a curved iron wire or stilet. 3rd. The last-mentioned
without the stilet, but which have been kept upon it long enou
to acquire permanently more or less of a curved form. Of the
the latter are to be preferred wherever they are found to answ
the intended purpose, and for this reason, that being to a consid-

iable, they can do no sort of injury to the urethra, ail to enter the bladder.

hts the simple elastic gum catheter should always be to in the first instance. As a general rule, one that igh to fill the urethra without stretching it, will be introduced than a smaller one. But to this there are nd sometimes the surgeon will succeed with a small has failed with a large one.

t attempt is unsuccessful, and it is necessary to have n inflexible catheter having a permanent curvature, l reason for using the gum catheter mounted on an ather than a silver catheter, inasmuch as it is often enerally desirable, that the catheter once introduced lder, should be allowed to remain there, and as the ese is very well adapted, and the latter very ill adapted ose.

these circumstances there is a very serious objection a very small catheter, as being more likely to lacerate than a larger one.

mode of introducing the catheter, it is impossible to ct directions to assist the surgeon in this or any other lation.

observed, however, that all hurry should be avoided, e used should be no more than is absolutely necessary, e point of the catheter reaches the prostate gland, no ld be made to thrust it into the bladder, but that it t to find its way by itself by gently and slowly de- handle of the instrument.

euvre suggested by the late Mr. Hey in his very ractical observations on surgery, namely, that of in a withdrawing the stilet, may often be had recourse to ge. The principal projection of the prostate gland is ior part. When the stilet is slightly withdrawn, the catheter is a little altered, and the point being tilted ade to avoid the prominence behind.